BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : UNI 13,8 h Edition : 26.06.92 : 02.92 Replaces Test oil : ISO-4113 Combination no. : 0 402 646 923 Injection pump Pump designation : PE6P130A720RS7225 EP type number : 0 412 636 817 Governor Governor design. : RQV300...900PA946 Governer no. : 0 421 813 845 Customer-spec. information Customer : IVECO-UNIC Engine : 8210.42.061 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder **: 1 688 90**1 105 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 : 1 680 750 015 Test lines Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 11.50...12.50

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 27.0...27.3 100 s: (26.6...27.6) Spread cm3 : 0.6100 s: (1.0) 2nd speed rpm : 300.0Rack travel in mm: 4.4...4.8 Del.quantity cm3/: 1.9...2.5 100 s: (1.5...2.9) cm3 : 1.0 Spread 100 s: (1.4) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 945 1st speed : 8.40...8.60 travel mm 2nd speed rpm : 300 travel mm : 1.00...1.40 3rd speed rpm : 500 3.30...3.90 travel mm 4th speed rom : 700 : 5.50...5.90 rpm : 1200 travel mm 5th speed travel mm : 11.00...12.00 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 935 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Aneroid pressure h: 900 Del.quantity : 270.0...273.0 1000 : (266.5...276.5)

: 6.00 Spread cm3

1000 : (10.00)

# RATED SPEED

1st version Control lever

position degrees: 117...125

Testing:

1st rack travel in: 11.60 rpm : 940...950 Speed

2nd rack travel in: 4.00

Speed rpm : 1015...1045 4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 75...83

Testing:

Speed rpm : 100 Minimum rack trave: 6.10 rpm : 300

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 320...440 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

Speed rpm : 500Pressure hPa : 900

Rack travel mm : 12.60...12.70

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 10.20...10.40

2nd pressure hPa : 350 Rack travel in m: 12.00...12.10

3rd pressure hPa : 300

Rack travel in m: 10.90...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 500 Del.quantity cm3/: 285.0...292.0

1000 s: (281.5...295.5)

Ameroid pressure h: -

Speed rom : 500 Del.quantity cm3/: 202.0...205.0 1000 s: (198.5...208.5)

### **BREAKAWAY**

1st version

1mm rack travel less than

full load rack tr: 11.60

Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...165.0

1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 4.40...4.80 Del.quantity cm3/ : 19.0...25.0

1000 s: (15.0...29.0)

cm3 : 10.00Spread

1000 s: (14.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

A02

Note remarks

Test sheet : MB

: 26.06.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 926

Injection pump

Pump designation: PE6P12OA320L\$7834-10

EP type number : D 412 626 853

Governor

Governor design. : RQV300...950PA797-19

Governer no. : 0 421 813 901

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M401 LA Engine

: 230.0 1st version kW

Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.50...5.60 Prestroke mm

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

rpm: 550 1st speed

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread cm3 : 0.6

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

cm3 : 0.6

Spread

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.00...1.50 travel mm

2nd speed rpm : 617

5.00...5.50 travel mm

rpm : 780 3rd speed

: 6.10...6.60 travel mm

4th speed rpm : 1009

: 8.30...8.80 travel mm

5th speed rpm : 1092

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version rpm : 550 Speed Aneroid pressure h: 1200 Del.quantity : 240.0...245.0) : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 990...1000 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1200 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: rpm : 200 Speed Minimum rack trave: 8.50 rpm : 300 Speed Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 950 Rack travel in m: 14.90...15.10 3rd speed rpm : 800 Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1200 Pressure : 15.20...15.40 Rack travel mm Measurement 1/min : 500Speed

Rack travel in m: 13.80...14.00 START CUT-OUT Speed 1/min : 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 950 Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/: 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 8.00 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 990...1000 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

1st pressure hPa : -

2nd pressure hPa : 250

Rack travel in m: 10.10...10.40

Rack travel in m: 10.60...10.70 3rd pressure hPa : 750

### Note remarks

Test sheet

: MB

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 926X

Injection pump

Pump designation : PE6P12OA320LS7834-10

EP type number

: 0 412 626 853

Governor

Governor design. : RQV300...950PA797-19

Governer no.

: 0 421 813 901

Cust. part no.

: 0120740502

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW : 230.0

Rated speed

: 1900

# TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening |

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0.8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

cm3 : 0.6

100 s: (0.9)

rpm : 300.0

2nd speed Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

Spread

Spread

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 300

travel mm

: 1.00...1.50

2nd speed travel mm

rpm : 617

: 5.00...5.50

3rd speed travel mm

: 780 rpm

: 6.10...6.60

4th speed travel mm

rpm

: 1009 : 8.30...8.80

5th speed travel mm

rpm

: 1092 : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1020 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 550 Aneroid pressure h: 1200 Del.quantity : 240.0...242.0 1000 : (237.0...245.0) cm3 : 6.00 Spread 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.90 rpm : 990...1000 Speed 2nd rack travel in: 4.00 rpm : 1070...1100 Speed 4th rack travel in: 1200 rpm : 0.00...1.40 Speed LOW IDLE 1 Control lever position degrees: 82...90 Testing: Speed rpm : 200 Minimum rack trave: 8.50 : 300 rpm Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rum : 300...500 TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 950 Rack travel in m: 14.90...15.10 : 800 3rd speed rpm Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 1200 Pressure Rack travel mm : 15.20...15.40 Measurement

 $1/\min : 500$ 

1st pressure hPa : -Rack travel in m: 10.10...10.40 2nd pressure hPa : 250 Rack travel in m: 10.60...10.70 3rd pressure hPa : 750 Rack travel in m: 13.80...14.00 START CUT-OUT 1/min: 240 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 950 Del.quantity cm3/: 236.0...239.0 1000 s: (233.0...242.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 990...1000 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

Speed

Note remarks

Test sheet : SCA

Edition : 26.06.92

Replaces

Test oil : ISO-4113

Combination no. : 0 402 646 927

Injection pump

Pump designation : PE6P120A320RS7138

EP type number : 0 412 626 822

Governor

Governor design. : RQV300...900PA712-7

Governer no. : 0 421 813 913

Customer-spec. information

Customer : SCANIA

Engine : DS9 05

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle helder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50

: (4.35...4.55)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.20...12.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

cm3 : 0.6Spread

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 4.6...5.0

Del.quantity cm3/: 2.0...2.4 100 s: (1.7...2.7)

cm3 : 0.3

100 s: (0.6)

(B) Setting of injection pump with governor

Spread

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.40...1.80 travel mm

rpm : 3502nd speed

: 1.90...2.50 travel mm

3rd speed rpm : 650 travel mm

: 4.70...5.30 rpm : 950 4th speed

: 7.90...8.10 travel mm

rpm : 1045 5th speed

: 9.30...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1000 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom : 700Aneroid pressure h: 900

Del.quantity : 100.0...170.0)

Spread cm3: 6.00 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 100...108

Testing:

1st rack travel in: 11.20 rpm : 940...950 Speed 2nd rack travel in: 4.00

rpm : 1010...1040 Speed

4th rack travel in: 1150

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 70...78

Testing:

Speed : 100 rpm Minimum rack trave: 10.00 : 300 Speed rpm

Rack travel in mm : 4.60...4.80

Rack travel in mm: 2.00 Speed : 330...390 rpm

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : 900

Rack travel mm : 12.20...12.30

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.60...11.00 2nd pressure hPa : 360 Rack travel in m: 11.80...11.90

3rd pressure hPa : 250

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed : 900 rpm

Del.quantity cm3/: 164.0...172.0 1000 s: (162.0...174.0)

Aneroid pressure h: -

Speed man : 500 Del.quantity cm3/: 125.0...129.0 1000 s: (122.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 940...950

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 270.0...320.0 1000 s: (266.0...324.0) Rack travel in mm: 20.00...21.00

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.60...4.80

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet

: MB

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 402 646 929

Injection pump

Pump designation: PE6P120A320LS7834-10

EP type number

: 0 412 626 853

Governor

Governor design.

: RQV300...1050PA797

-25

Governer no.

: 0 421 813 924

Customer

Customer-spec. information

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW

: 230.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm : 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order

: 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm : 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

100 s: (0.9)

cm3 : 0.6

2nd speed rpm : 300.0

Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5)

Spread

Spread

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm

2nd speed rpm : 608

: 4.80...5.30 travel mm

3rd speed rpm : 820

: 5.90...6.40 travel mm : 1108 **LDW** 

4th speed travel mm

: 8.30...8.80

5th speed

Speed

man : 1183

travel mm : 9.80...10.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1130

Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 550 Aneroid pressure h: 1200 : 240.0...242.0 : (237.0...245.0) Del.quantity 1000 Spread cm3 : 6.00 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 120...128 Testing: 1st rack travel in: 13.90 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.40 LOW IDLE 1 Control lever position degrees: 87...92 Testing: Speed rpm : 200 Minimum rack trave: 8.70 : 300 rpm Rack travel in mm : 6.50...6.70 CONSTANT REGULATION rom : 300...500Speed TORQUE CONTROL Dimension a mm : 0.30 2nd speed rpm : 1050 Rack travel in m: 14.90...15.10 rpm : 800 3rd speed Rack travel in m: 15.20...15.40 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1200 : 15.20...15.40 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 10.10...10.30 2nd pressure hPa : 250

Rack travel in m: 10.60...10.70

3rd pressure hPa : 750 Rack travel in m: 13.80...14.00 START CUT-OUT Speed 1/min: 240 (260) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1050 Del.quantity cm3/: 234.0...237.0 1000 s: (231.0...240.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 134.0...136.0 1000 s: (131.0...139.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.90 Speed rpm : 1090...1100 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 200.0...230.0 1000 s: (196.0...234.0) Remarks:

A10

Note remarks

Test sheet

: MB

Edition

: 26.06.92

Replaces Test oil

: ISO-4113

Combination no.

: 0 402 646 929X

Injection pump

Pump designation : PE6P120A320LS7834-10

EP type number

: 0 412 626 853

Governor

Governor design.

: RQV300...1050PA797

-25

Governer no.

: 0 421 813 924

Cust. part no.

: 0200744102

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M401 LA

1st version kW

Rated speed

: 230.0 : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

**Opening** 

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 075

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.50...5.60

: (5.45...5.65)

Rack travel in mm : 20.00...21.00 Firing order : 6-3-5-2-4-1

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 550

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 24.0...24.2

100 s: (23.7...24.5)

Spread

Spread

cm3 : 0.6

100 s: (0.9)

rpm : 300.0

2nd speed Rack travel in mm: 6.3...6.9

Del.quantity cm3/: 1.6...2.2

100 s: (1.3...2.5)

cm3 : 0.6

100 s: (1.0)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.00...1.50 travel mm

2nd speed : 608 rpm

: 4.80...5.30 travel mm

3rd speed : 820 rpm

: 5.90...6.40 travel mm

4th speed

: 1108 rpm

: 8.30...8.80

travel mm 5th speed

: 1183

rpm

: 9.80...10.30 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1130 Speed

Rack travel in mm : 12.60...15.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 550 Aneroid pressure h: 1200

: 240.0...242.0 Del.quantity

1000 : (237.0...245.0)

Spread cm3: 6.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 120...128

Testing:

1st rack travel in: 13.90

Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1300

Speed rpm : 0.00...1.40

LOW IDLE 1 Control lever

position degrees: 87...92

Testing:

Speed : 200 rpm Minimum rack trave: 8.70 : 300 rpm

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

rpm : 300...500 Speed

TORQUE CONTROL

: 0.30 Dimension a mm : 1050 2nd speed rpm

Rack travel in m: 14.90...15.10

: 800 3rd speed rpm

Rack travel in m: 15.20...15.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 man hPa : 1200 Pressure

Rack travel mm : 15.20...15.40

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.10...10.40

2nd pressure hPa : 250

Rack travel in m: 10.60...10.70

3rd pressure hPa : 750

Rack travel in m: 13.80...14.00

START CUT-OUT

1/min : 240 (260) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm\_ : 1050 Speed

Del.quantity cm3/: 234.0...237.0

1000 s: (231.0...240.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 134.0...136.0

1000 s: (131.0...139.0)

cm3 : 8.00 Spread

1000 s: (12.9)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.90

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 200.0...230.0

**1000** s: (196.0...234.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MTU Edition : 21.05.92 Replaces Test oil : ISO-4113 Phasing Combination no. : 0 402 746 933 Injection pump Pump designation : PES6P120A720LS7262 EP type number : 0 412 726 875 Governor Governor design. : RQV300...1050PA1040 Governer no. : 0 421 814 007 Customer-spec. information Customer Engine : 6R183-02 TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Spread Overflow quantity min. 1/h: 100...120 Test nozzle holder assembly : 1 688 901 019 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,8 Test lines : 1 680 750 075 Outside diameter x Wall thickness : 8.00x2.50x1000 x Length mm (A) Injection pump setting values Speed Insp. values in parentheses Set equal delivery quant. per values

: 4.00...4.10 Prestroke mm : (3.95...4.15) Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-3 : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm : 1050 Rack travel in mm : 13.90...14.00 Del.quantity cm3/: 33.0...33.2 100 s: (32.7...33.5) cm3 : 0.5100 s: (0.9) rpm : 350.02nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 1.7...2.3 100 s: (1.4...2.6) cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.10...1.30 2nd speed rpm : 600 travel mm : 4.90...5.10 3rd speed : 800 rpm : 5.90...6.20 travel mm 1100 4th speed rpm : 8.10...8.50 travel mm : 1175 5th speed rpm : 9.70...10.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1080 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050

Aneroid pressure h: 1600

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Del. quantity **: 330.0...3**32.0

1000 : (327.0...335.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 112...120

Testing:

1st rack travel in: 13.00 Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 60...68

Testing:

: 250 Speed rpm Minimum rack trave: 7.50 rpm : 350

Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm hPa : 1600 Pressure

: 13.90...14.00 Rack travel mm

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 7.60...7.80

2nd pressure hPa : 1200

Rack travel in m: 13.60...13.70

3rd pressure hPa : 400

Rack travel in m: 9.60...9.80

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

A14

Aneroid pressure h: 1600

Speed rpm : 750

Del.quantity cm3/: 333.0...337.0

1000 s: (330.0...340.0)

Spread cm3 : 8.001000 s: (12.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

cm3 : 8.00 Spread

1000 s: (12.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 385.0...405.0

1000 s: (381.0...409.0)

Remarks:

Note remarks

Test sheet : MAC 16,0 a Edition : 03.04.92 Replaces : 03.91 Test oil : ISO-4113

Combination no. : 0 402 748 802

Injection pump

Pump designation: PES8P120A920/4LS7159

EP type number : 0 412 728 801

Governor

Governor design. : RQV325...1050PA848-

21K

: D 421 815 201 Governer no.

Customer-spec. information Customer : MACK

: EE9 502 Engine

: 368.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1- 2- 7- 8- 4- 5-

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 630

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 21.1...21.3

100 s: (20.8...21.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm: 4.8...5.0

Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.50...1.80 travel mm

2nd speed rpm : 450

travel mm : 2.60...3.00

3rd speed rpm : 750

: 4.10...4.50 travel mm

: 1120 4th speed rpm

travel mm : 7.40...7.60

rpm : 1430 5th speed

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1185 Speed

Rack travel in mm : 11.00...13.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed nom : 630 Aneroid pressure h: 1200 : 211.0...213.0 Del.quantity 1000 : (208.0...216.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 112...120 Testing: 1st rack travel in: 12.30 Speed rpm : 1115...1125 2nd rack travel in: 4.00 rpm : 1230...1260 Speed 4th rack travel in: 1350 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Testing: Speed rpm : 225 Minimum rack trave: 7.40 rpm : 325 Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...600 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 630 Rack travel in m: 12.10...12.20 rpm : 1050 2nd speed Rack travel in m: 13.30...13.50 rpm : 500 3rd speed Rack travel in m: 0.00...11.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 1050 Pressure hPa : 1200 Rack travel mm : 13.30...13.50 Measurement Speed  $1/\min : 1050$ 1st pressure hPa : -Rack travel in m: 9.10...9.50

2nd pressure hPa : 195 Rack travel in m: 10.20...10.30 3rd pressure hPa : 410 Rack travel in m: 12.10...12.50 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 1050 Speed rpm Del.quantity cm3/: 204.0...210.0 1000 s: (201.0...213.0) cm3 : 10.00Spread 1000 s: (14.0) rpm : 850 Speed Del.quantity cm3/: 159.0...161.0 \* 1000 s: (151.0...173.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 170.5...174.5 1000 s: (168.5...176.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.30 Speed rpm : 1115...1125 STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 150.0...190.0 1000 s: (145.0...195.0) Rack travel in mm : 9.50...9.90 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.80...5.00
Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Spread cm3 : 8.001000 s: (12.00) Remarks: : MACK # 313GC5178P4 \* This test specification applies only

to the engine/nozzle-and-holder

assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 25...27 : 5.20...5.30 Note remarks Prestroke mm : (5.15...5.35) Test sheet Rack travel in mm : 9.00...12.00 : MB Edition : 26.06.92 Firing order : 6-2-4-1-5-3 Replaces Test oil : ISO-4113 Combination no. : 0 402 766 800 : 0-60-120-180-240-300 Phasing Phasing Injection pump Tolerance + - \* : 0.50 (0.75) Pump designation : PES6P120A720/3LS7120 Time to cyl. no. : 6 EP type number : 0 412 726 878 Governor BASIC SETTING Governor design. : RSV350...1050POA529 1st speed rpm: 650 Governer no. : 0 421 833 317 Rack travel in mm : 14.00...14.20 Customer-spec. information : MERCEDE'S-BENZ Customer Del.quantity cm3/: 20.1...20.3 Engine : OM447 A 100 s: (19.8...20.6) 1st version kW : 213.0 Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0Test oil Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.4...2.0 160 s: (1.1...2.3) inlet temp. °C : 38...42 Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Overflow Degree: -3 quantity min. 1/h: 100...120 rpm : 800 Rack travel in mm : 0.30...0.70 Test nozzle holder assembly : 1 688 901 105 Governor spring pre-tension Click setting x : 4.25Opening pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test Lines : 1 680 750 075 Speed rpm : 650 Aneroid pressure h: 650 Del.quantity : 201.0...206.0) Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000 : 5.00 Spread cm3 1000 : (9.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. per values 1st version Control lever

position degrees: 90...98

BEGINNING OF DELIVERY

Testing: 1st rack travel in: 12.30 rpm : 1080...1085 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1173 4th rack travel in: 1300 nom : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring : 350 rom Rack travel in mm: 5.7 rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1030 1st speed Rack travel in m: 13.30...13.50 2nd speed rpm : 950 Rack travel in m: 13.70...13.90 3rd speed rpm : 875 Rack travel in m: 14.20...14.40 rpm : 750 4th speed Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting Speed nan : 600 hPa : 650 Pressure : 14.00...14.20 Rack travel mm Measurement Speed  $1/\min : 600$ 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1030 Speed

Del.quantity cm3/: 190.0...193.0 1000 s: (187.0...196.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750
Del.quantity cm3/ : 214.0...219.0 1000 s: (211.0...222.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 142.0...144.0 1000 s: (139.0...147.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.30 rpm : 1080...1085

: 100 Speed rpm Del.quantity cm3/: 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

STARTING FUEL DELIVERY

Speed

A19

Note remarks

Test sheet : MB6,1I Edition : 03.07.92 : 03.92 Replaces Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump

Pump designation : PES6MW100/720RS1515

EP type number : 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-4

Governer no. : 0 420 083 284

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

: 127.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 5.20...5.30 Prestroke mm : (5.15...5.35)

Rack travel in mm : 21.00...0.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 3.9...4.2

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

: 8.60...9.00 travel mm

2nd speed rpm : 880

: 4.90...5.10 travel mm

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

: 1.20...1.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

Del.quantity

96.0...98.0 1000 : (94.0...100.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 10.50

A20

Speed rpm : 1340...1350

2nd rack travel in: 4.00

Speed : 1430...1460 (TOM

4th rack travel in: 1550

riom : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 62...70 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 4.0

Testing:

Speed : 200 Lbw Minimum rack trave: 5.00 Speed rpm : 300

Rack travel in mm : 3.90...4.20

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 mar Pressure hPa : -

: 8.70...8.90 Rack travel mm

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : 300

Rack travel in m: 9.40...9.60

2nd pressure hPa : 500

Rack travel in m: 10.80...11.00

3rd pressure hPa : 1000

Rack travel in m: 11.50...11.60

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 Speed rpm : 750

Del.quantity cm3/: 89.0...92.0

1000 s: (86.5...94.5)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -Speed : 500 rpm

Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

**BREAKAWAY** 

A21

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm: 3.90...4.20
Del.quantity cm3/: 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3: 3.50

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,1 I 1 Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 403 246 032 Injection pump Pump designation : PES6MW100/720RS1515 EP type number : 0 413 206 013 Governor Governor design. : RQV300...1300MW125-2 : 0 420 083 259 Governer no. Customer-spec. information Customer : MB-NFZ : 0M366LA Engine 1st version kW : 142.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 21.00...0.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 4.2...4.4 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.00...8.40 2nd speed rpm : 960

travel mm : 5.40...5.60

3rd speed rpm : 600

travel mm : 3.20...3.80

4th speed rpm : 300

travel mm : 0.80...1.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1100

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 3.50 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 108...116 Testina: 1st rack travel in: 11.50 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 4.3 Testina: Speed : 200 rpm Minimum rack trave: 5.00 Speed : 300 rpm Rack travel in mm: 4.20...4.40 Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm Pressure hPa:-: 8.70...8.90 Rack travel mm Measurement  $1/\min: 500$ Speed 1st pressure hPa : 250 Rack travel in m: 9.70...9.90 2nd pressure hPa : 500
Rack travel in m: 11.40...11.60
3rd pressure hPa : 1100 Rack travel in m: 12.50...12.60 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed rpm : 750 Del.quantity cm3/: 100.0...103.0

1000 s: (98.0...105.0)

cm3 : 5.00 1000 s: (7.0) Speed rpm : 500
Del.quantity cm3/ : 31.0...33.0
1000 s: (29.0...35.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

•

Remarks:

A23

Spread

Aneroid pressure h: -

Note remarks

Test sheet

: VOL

Edition

: 26.06.92

Replaces

: 03.92

Test oil

: ISO-4113

Combination no. : 0 403 444 135

Injection pump

Pump designation : PES4MW100/320RS1223

EP type number

: 0 413 404 119

Governor

Governor design.

: RQV300...1100MW122-1

Governer no.

: 0 420 083 990

Customer-spec. information Customer

: VME

Engine

: TD45E

1st version kW

: 92.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 173...176

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 2.8...3.2

100 s: (2.5...3.4) cm3 : 0.3

Spread

Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1145 1st speed

: 10.00...10.40 travel mm

2nd speed rpm : 800

: 6.10...6.30 travel mm

3rd speed rpm : 500

: 3.40...4.00 travel mm

4th speed : 300 rpm

: 1.50...1.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 750

Aneroid F. Del.quantity 1000

: 128.0...130.0

: (126.0...132.0)

Spread cm3

: 3.50 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 13.70 Speed rpm : 1140...1150 2nd rack travel in: 4.00 rpm : 1250...1280 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 200 Minimum rack trave: 7.50 : 300 Speed man Rack travel in mm : 6.00...6.20 TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 14.70...14.80 : 880 2nd speed riom Rack travel in m: 15.00...15.10 3rd speed rpm : 550 Rack travel in m: 14.20...14.30 4th speed rpm : 750 Rack travel in m: 14.70...14.80 Aneroid/Altitude Compensator Test 1st version Setting : 550 Speed rpm Pressure hPa : -: 12.80...12.90 Rack travel mm Measurement 1/min: 550 Speed 1st pressure hPa : 220 Rack travel in m: 13.10...13.20 2nd pressure hPa : 370 Rack travel in m: 13.60...13.90 3rd pressure hPa : 750 Rack travel in m: 14.20...14.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS

Speed rpm : 880 Del.quantity cm3/ : 133.5...136.5 1000 s: (131.0...139.0) cm3 : 5.50Spread 1000 s: (7.0) Aneroid pressure h: rpm : 550 Speed Del.guantity cm3/: 86.0...88.0 1000 s: (84.0...90.0) RACK STOP ADJUSTMENT Speed rom : 100 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.70 : 1140...1150 Speed rpm STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 145.0...155.0 1000 s: (142.0...158.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) Spread cm3 : 3.501000 s: (5.50)

Remarks:

1st version

Aneroid pressure h: 750

Note remarks

Test sheet

: MB

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 444 139

Injection pump

Pump designation: PES4MW100/720RS1151

EP type number

: 0 413 404 104

Governor

Governor design. : RQV300...1300MW67-7

Governer no.

: 0 420 083 278

Customer

Customer-spec. information : MB-NFZ

Engine

: 0M364A

1st version kW

: 79.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

A26

Firing order

: 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - "

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

2nd speed Rack travel in mm: 6.3...6.5

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1350

travel mm

: 8.40...8.80

2nd speed travel mm

rpm : 880 : 4.90...5.10

3rd speed

rpm : 500

travel mm

: 2.70...3.30

4th speed

rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1350

Speed

Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700

Del.quantity

: 82.0...84.0

: (80.0...86.0)

1000

cm3

: 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: 108...116

Testina:

1st rack travel in: 9.80

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

Speed rpm : 1420...1450 4th rack travel in: 1500

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 74...82

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.4

Testing:

: 200 Speed rpm Minimum rack trave: 8.00 : 300 rpm

Rack travel in mm : 6.30...6.50

Rack travel in mm : 2.00 rpm : 480...540 Speed

TORQUE CONTROL

Dimension a mm : 0.80

Torque control curve - 1st version

rpm : 1300 1st speed

Rack travel in m: 10.80...10.90

2nd speed rpm : 600

Rack travel in m: 11.60...11.70

3rd speed rpm : 1000

Rack travel in m: 11.60...11.70

rpm : 1175 4th speed

Rack travel in m: 11.30...11.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : -

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 150 Rack travel in m: 10.30...10.50 2nd pressure hPa : 300 Rack travel in m: 11.30...11.50

3rd pressure hPa : 700

Rack travel in m: 11.60...11.70

START CUT-OUT

1/min : 200 (230) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600 Del.quantity cm3/ : 75.0...78.0 1000 s: (72.5...80.5)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm\_ : 500 Speed

Del.quantity cm3/: 46.0...48.0

1000 s: (44.0...50.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/ : 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

: 300 Speed rpm

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks

Test sheet : VOL 4,5 Q
Edition : 21.05.92
Replaces : 11.91
Test oil : ISO-4113

Combination no. : 0 403 446 287

Injection pump

Pump designation : PES6MW100/320RS1219

EP type number : 0 413 406 209

Governor

Governor design. : RQV350...1100MW118 Governor no. : 0 420 083 249

Customer—spec. information Customer : VME

Engine : TD 61 GB

1st version kW : 115.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance  $+ - \circ : 0.50 (0.75)$ 

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 11.2...11.4

100 s: (11.0...11.6)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.00...9.40

2nd speed rpm : 1150

travel mm : 8.70...8.90

3rd speed rpm: 725

travel mm : 3.70...4.30

4th speed rpm : 350

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.60

**A28** 

rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 4th rack travel in: 1300 Speed rpm : 0.10...1.00 LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.6 Testing: Speed rpm : 200 Minimum rack trave: 8.00 Speed rpm : 350 Rack travel in mm : 5.50...5.70 Rack travel in mm : 2.00 Speed rpm : 460...520 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 11.60...11.70 ad speed rpm : 700 2nd speed Rack travel in m: 12.40...12.60 3rd speed rpm : 1025 Rack travel in m: 11.80...12.10 4th speed rpm : 900 Rack traval in m: 12.20...12.50 Aneroid/Altitude Compensator Test 1st version Setting beea rpm : 700 Pressure hPa : 870 Rack travel mm : 12.10...12.20 Measurement Speed 1/min: 700 1st pressure hPa : -Rack travel in m: 9.80...9.90
2nd pressure hPa : 250
Rack travel in m: 10.10...10.40
3rd pressure hPa : 1000 Rack travel in m: 12.40...12.60 START CUT-OUT 1/min : 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 122.5...125.5 1000 s: (120.0...128.0) cm3 : 3.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 700 Speed Del.quantity cm3/: 77.0...79.0 1000 s: (75.0...81.0) RACK STOP ADJUSTMENT Speed rpm : 100 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.60 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 350
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.00) Remarks:

B01

Note remarks

Tesi sheet : RVI 6,2 J 1 Edition : 13.03.92

Replaces : 03.92 Test oil : ISO-4113

Combination no. : 0 403 446 291

Injection pump

Pump designation : PES6MW100/320RS1214

EP type number : 0 413 406 204

Governor

: RQV275...1250MW115-1 Governor design.

: 0 420 083 992 Governer no.

Customer-spec. information Customer : RVI

: MIDR 060226 V Engine

1st version kW : 129.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.20...4.30 Prestroke mm : (4.15...4.35)

Rack travel in mm : 16.50...19.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.10...13.20

Del.guantity cm3/: 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 275.02nd speed

Rack travel in mm : 6.10...6.50

Del.quantity cm3/: 2.0...2.4

100 s: (1.7...2.6) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1330

: 9.80...10.20 travel mm

2nd speed rpm : 950

travel mm : 6.90...7.10

3rd speed rpm : 550 : 3.60...4.20 rpm : 275 travel mm

4th speed

: 0.80...1.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 1000

Del.quantity : 103.0...105.0

1000 : (101.0...107.0)

**B02** 

cm3 : 3.50Spread 1000 : (6.00)RATED SPEED 1st version Control Lever position degrees: 298...306 Testina: 1st rack travel in: 12.10 rpm : 1320...1340 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1500 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 238...246 Setting point w/out bumper spring rpm Speed : 275 Rack travel in mm: 5.30 Testing: Speed rpm : 200 Minimum rack trave: 6.40 Speed rpm : 275 Rack travel in mm : 5.10...5.30 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250
Rack travel in m: 13.10...13.20
2nd speed rpm : 700 Rack travel in m: 12.20...12.30 3rd speed rpm : 1000 Rack travel in m: 12.60...12.80 4th speed rpm : 500 Rack travel in m: 11.80...12.00 Aneroid/Altitude Compensator Test 1st version Setting rpm : 1250 hPa : 1000 Speed rom Pressure Rack travel mm : 13.10...13.20 Measurement

1/min: 1250

Rack travel in m: 12.00...12.20

Rack travel in m: 12.60...12.80

Rack travel in m: 12.30...12.50

1st pressure hPa : -

2nd pressure hPa : 180

3rd pressure hPa : 140

Speed Spread Speed Speed

START CUT-OUT Speed 1/min : 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 700 Del.quantity cm3/: 98.5...101.5 1000 s: (96.0...104.0) cm3 : 5.00 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 1250 Del.quantity cm3/: 89.0...91.0 1000 s: (87.0...93.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.10 rpm : 1320...1340 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 88.0...112.0 1000 s: (85.0...115.0) Rack travel in mm : 19.50...21.00 LOW IDLE rpm : 275 Rack travel in mm : 6.10...6.50 Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3: 3.50 1000 s: (5.00) Remarks: Set start-of-delivery sensor with prestroke = 4.20...4.30 mm at cylinder 1.

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC Edition : 03.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 308 Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 Governor Governor design. : RQV350...1200MW46-47 : 0 420 083 277 Governer no. Customer-spec. information Customer : NAVISTAR Engine : DTA-466 1st version kW : 156.5 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Firing order Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm:800Rack travel in mm : 11.50...11.60 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.D 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1450 1st speed : 9.80...10.20 travel mm 2nd speed rpm : 1250 : 7.90...8.10 travel mm 3rd speed rpm : 550 : 3.10...3.70 travel mm 4th speed : 350 rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 1200 Del.quantity : 122.0...124.0 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

1st version

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control lever position degrees: 102...110 Testina: 1st rack travel in: 10.50 Speed

rpm : 1270...1290

2nd rack travel in: 4.00

Speed rpm : 1405...1415 4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 66...74 Setting point w/out bumper spring

rom Rack travel in mm: 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version Settina

Speed : 500 rpm hPa : 1200 Pressure

Rack travel mm : 11.50...11.60

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.80 2nd pressure hPa : 245 Rack travel in m: 9.80...9.90 3rd pressure hPa : 395

Rack travel in m: 10.90...11.30

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm\_ : 1200

Del.quantity cm3/: 118.5...122.5

1000 s: (116.5...124.5)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 68.0...71.0 1000 s: (66.0...73.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...170.0 1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

: IHC #1819888C91 Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

Test sheet : MAN 7,3 D : 21.05.92 Edition Replaces : 01.92 Test oil : ISO-4113

: 0 403 456 115 Combination no.

Injection pump

Pump designation : PES6MW100/321RS1215

EP type number : 0 413 406 205

Governor

Governor design. : RQ250/1200MW84-7 : 0 420 082 055 Governer no.

Customer-spec. information Customer : MAN

: D 0826 LUH 01 Engine

1st version kW : 199.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 17.5...17.7

100 s: (17.3...17.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 2.8...3.2 100 s: (2.5...3.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1320 1st speed

travel mm : 9.30...9.70

rpm : 1255 2nd speed

: 6.50...6.70 travel mm 3rd speed rpm : 360

: 3.90...4.50 travel mm

4th speed rpm : 250

travel mm : 1.60...2.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108 rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000Aneroid pressure h: 1400

Aneroid M. Del.quantity 1000 : 175.0...177.0

: (173.0...179.0)

cm3 : 3.50 Spread

1000 : (6.00)

**B06** 

RATED SPEED

1st version

Control lever

position degrees: 91...99

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.20

rpm : 1245...1260 Speed

2nd rack travel in: 4.00

rpm : 1340...1370 Speed

4th rack travel in: 1400

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 6.4

Testing:

rpm : 150 Speed

Minimum rack trave: 8.00

Speed rpm : 250 Rack travel in mm : 6.30...6.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom

hPa : 350 Pressure

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.00...9.10

2nd pressure hPa : 850

Rack travel in m: 12.30...12.60

3rd pressure hPa : 1400

Rack travel in m: 14.20...14.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 600

Del.quantity cm3/: 180.0...183.0

1000 s: (177.5...185.5)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500
Del.quantity cm3/: 60.0...62.0
1000 s: (58.0...64.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.20

rpm : 1245...1260 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 60.0...80.0

1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

: MAN #3-7126

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet

: MAN

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 456 118

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number

: 0 413 406 190

Governor

Governor design. : RQV250...1200MW83-3

Governer no.

: 0 420 083 280

Customer-spec. information Customer

: MAN

Engine

: D 0826 LF08

1st version kW

Rated speed

: 169.0 : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Time to cyl. no. : 1 BASIC SETTING

Tolerance + - °

Firing order

1st speed

Phasina

rpm: 1000

Rack travel in mm : 12.60...12.70

: 0.50 (0.75)

: 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300

Del.guantity cm3/: 14.0...14.2

100 s: (13.8...14.4)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm: 5.4...5.6

Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

Spread

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250

travel mm

: 10.50...10.60

rpm : 810 2nd speed

travel mm rpm : 500 3rd speed

: 5.90...6.10

travel mm

: 3.70...4.30

4th speed

: 250

travel mm

rpm

: 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 1000

Aneroid pressure h: 1000

: 140.0...142.0 Del.quantity 1000 : (138.0...144.0)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 120...128

**B08** 

Testing: 1st rack travel in: 11.40 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rpm : 1320...1350 4th rack travel in: 1400 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 7.00 Speed rpm : 250 Rack travel in mm : 5.40...5.60 CONSTANT REGULATION Speed rpm : 330...420 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.60...12.70 rpm : 600 2nd speed Rack travel in m: 12.80...13.00 3rd speed rpm: 800 Rack travel in m: 12.80...13.00 4th speed rpm : 1200 Rack travel in m: 12.30...12.50 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 155 Speed rom Pressure Rack travel mm : 10.30...10.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.80...13.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

Speed rpm : 600 Del.quantity cm3/ : 139.5...142.5 1000 s: (137.0...145.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.40 Speed rpm : 1245...1260 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) LOW IDLE

: MAN #3-7135 Start-of-delivery mark is at start of delivery of cylinder !

B09

Note remarks

Test sheet

: MAN

Edition

: 26.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 456 119

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number

: 0 413 406 190

Governor

Governor design. : RQ250/1200MW84-10

Governer no.

: 0 420 082 065

Customer-spec. information Customer

: MAN

Engine

: D0826LF 08/LUH05

1st version kW

: 169.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

**B10** 

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 800

Rack travel in mm : 12.80...12.90

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 250.02nd speed

Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.5Spread

100 s: (0.7)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed travel mm

rpm : 1300 : 8.40...8.80

2nd speed rpm : 1260

: 6.60...6.80 travel mm

rpm : 345

3rd speed : 4.00...4.60 travel mm

4th speed travel mm

rpm : 250

: 1.80...2.20

GUIDE SLEEVE POSITION

Control-lever position Degree: 107

rpm : 600

Rack travel in mm : 18.20...19.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

Spread

rpm : 800

Aneroid pressure h: 1000 : 141.0...143.0 Del.quantity

1000 : (139.0...145.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Setting point:

Speed rpm : 600 Rack travel in mm: 19.0

Testing:

1st rack travel in: 11.50

Speed rpm : 1245...1260 2nd rack travel in: 4.00

rpm : 1300...1330 Speed

4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 69...77

Setting point w/out bumper spring

rpm : 250 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 7.00 rpm : 250

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - îst version

1st speed rpm : 800

Rack travel in m: 12.80...12.90

2nd speed rpm : 600

Rack travel in m: 12.70...12.90

3rd speed rpm : 1000

Rack travel in m: 12.50...12.60

4th speed rpm : 1200

Rack travel in m: 12.20...12.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : 155

Rack travel mm : 10.30...10.40

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 550

Rack travel in m: 11.90...12.20

3rd pressure hPa : 1000

Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600 Del.quantity cm3/ : 139.5...142.5 1000 s: (137.0...145.0)

cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 74.0...76.0

1000 s: (72.0...78.0)

**BREAKAWAY** 

Spread

1st version

150m rack travel less than

full load rack tr: 11.50

Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 60.0...80.0

1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

cm3 : 5.00

Spread

1000 s: (7.00)

Remarks:

: MAN #3-7035

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : CUM Edition : 26.06.92 Replaces : 03.92

Test oil : ISO-4113

Combination no. : 0 403 466 127

Injection pump

Pump designation : PES6MW100/120RS1137-

EP type number : 0 413 406 180

Governor

: RSV550...1100MW2A335 Governor design.

Governer no. : 0 420 085 185

Customer-spec. information Customer : CUMMINS

Engine : 6 CTA-8.3

1st version kW : 194.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

**Opening** 

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 firing order

: 0-60-120-180-240-300 Phasing

Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 15.4...15.6

100 s: (15.2...15.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 550.02nd speed

Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 1.8...2.2

100 s: (1.6...2.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 154.0...158.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 88...96

**B12** 

Setting point: : 800 Speed rom Rack travel in mm: 0.6 Testina: 1st rack travel in: 13.50 Speed rpm : 1165...1175 2nd rack travel in: 4.00 rpm : 1240...1250 Speed 3rd rack travel in: 4.00 rpm : 1240...1270 Speed 4th rack travel in: 1350 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 550 Rack travel in mm: 6.3 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 550 Speed rpm Rack travel in mm : 6.20...6.40 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 14.50...14.60 d speed rpm : 750 2nd speed Rack travel in m: 15.00...15.20 rpm : 1000 3rd speed Rack travel in m: 15.00...15.20 Compensator Test : 500 rom hPa : 900 : 15.00...15.20

Aneroid/Altitude 1st version Setting Speed Pressure Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.40...11.60 2nd pressure hPa : 400 Rack travel in m: 12.30...12.40 3rd pressure hPa : 630 Rack travel in m: 13.80...14.20 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 : 750 Speed rpm Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5) cm3 : 5.00 1000 s: (7.0) Spread Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 98.0...100.0 1000 s: (96.0...102.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 1165...1175 Speed

STARTING FUEL DELIVERY

Speed : 100 mar Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 550 Rack travel in mm : 6.70...6.90 Del.quantity cm3/: 18.5...22.5 1000 s: (16.0...25.0) cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: CUM #3911657

Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 26.06.92 Replaces : 03.92 Test oil : ISO-4113 Combination no. : 0 403 466 128 Injection pump Pump designation : PES6MW100/120RS1137-EP type number : 0 413 406 180 Governor Governor design. : RSV550...1100MW2A335 : 0 420 085 196 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CTA-8.3 1st version kW : 176.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil in!et temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Openina pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 3.50...3.60 : (3.45...3.65) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75)Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1100Rack travel in mm: 13.30...13.40 Del.quantity cm3/: 14.0...14.2 100 s: (13.8...14.4) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 550.0Rack travel in mm: 6.7...6.9 Del.quantity cm3/: 2.8...3.2 100 s: (2.6...3.5) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100Aneroid pressure h: 1000 Aneroiu P. Del.quantity 1000 : 140.0...142.0 : (138.0...144.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 86...94

Test pressure, bar: 30...32

per values

BEGINNING OF DELIVERY

Setting point:

Speed rom : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.30

rpm : 1165...1175 Speed

2nd rack travel in: 4.00

rpm : 1240...1250 Speed

3rd rack travel in: 4.00

rpm : 1240...1270 Speed

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW TDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

rpm Rack travel in mm : 6.3

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 550

Rack travel in mm : 6.20...6.40

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 13.30...13.40

rpm : 750 2nd speed

Rack travel in m: 14.00...14.10

3rd speed rpm : 1000

Rack travel in m: 14.00...14.10

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rpm Pressure hPa : 1000

Rack travel mm : 14.00...14.10

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.00...10.10

2nd pressure hPa : 450

Rack travel in m: 11.00...11.10

3rd pressure hPa : 675

Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 800 Del.quantity cm3/ : 153.0...157.0 1000 s: (151.0...159.0)

Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 79.0...81.0

1000 s: (77.0...83.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1165...1175 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...150.0

1000 s: (127.0...153.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 550 Speed

Rack travel in mm : 6.70...6.90

Del.quantity cm3/: 28.5...32.5

1000 s: (26.0...35.0)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: CUM #3921691

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

: LIE 8,4 D : 03.07.92 Test sheet Edition Replaces : 09.91

Test oil : ISO-4113

Combination no. : 0 403 476 081

Injection pump

Pump designation : PES6MW100/720RS1196-

EP type number : 0 413 406 219

Governor

Governor design. : RSV350...1050MW0A338

: 0 420 085 138 Governer no.

Customer-spec. information Customer : LIEBHERR

Engine : D 916 T

1st version kW : 170.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 049

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.40...3.50

: (3.35...3.55)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 6.0...6.4 Del.guantity cm3/: 2.7...3.1

100 s: (2.4...3.3)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 750

Del.quantity : 133.0...135.0

1000 : (131.0...137.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 98...106

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

**B16** 

1st rack travel in: 10.10 Speed rpm : 1070...1080 2nd rack travel in: 4.00 rpm : 1115...1145 Speed 3rd rack travel in: 4.00 rpm : 1140...1170 Speed 4th rack travel in: 1200 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350
Rack travel in mm : 5.50...5.90
Rack travel in mm : 2.00 rpm : 420...480 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 11.10...11.20 rpm : 500 2nd speed Rack travel in m: 11.10...11.20 3rd speed rpm : 800 Pack travel in m: 11.10...11.20 rpm : 400 5th speed Rack travel in m: 12.60...12.70 Aneroid/Altitude Compensator Test 1st version Setting rpm : 550 beea hPa : -Pressure Rack travel mm : 10.40...10.60 Measurement 1/min: 550 Speed 1st pressure hPa : 350 Rack travel in m: 10.80...11.00 2nd pressure hPa : 750 Rack travel in m: 11.10...11.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed rom : 500

Del.quantity cm3/: 127.0...130.0 1000 s: (124.5...132.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/: 120.0...122.0 1000 s: (118.0...124.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.10 Speed rpm : 1070...1080 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 19.50...21.00 LOW IDLE

Remarks:

Spread

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

cm3 : 3.50

1000 s: (5.00)

1000 s: (24.5...33.5)

Speed rpm : 350 Rack travel in mm : 6.00...6.40

Del.quantity cm3/: 27.0...31.0

Note remarks

Test sheet

: LIE

Edition

: 21.05.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 476 0810

Injection pump

Pump designation : PES6MW100/720RS1196

EP type number

: 0 413 406 184

Governor

Governor design. : RSV350...1050MWOA338

Governer no.

: 0 420 085 138

Customer

Customer-spec. information : LIEBHERR

Engine

: D 916 T

1st version kW

: 160.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 049

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Lenath mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prest toke mm

: 3.40...3.50

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

**B18** 

Firing order

: 1-5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm : 900

Rack travel in mm : 11.60...11.70

Del.quantity cm3/: 14.1...14.3

100 s: (13.9...14.5)

Spread

2nd speed

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 500.0

Rack travel in mm: 4.1...4.5 Del.quantity cm3/ : 1.5...1.9

100 s: (1.2...2.1)

cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed

008: mar

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900

Aneroid pressure h: 750 Del.quantity

: 141.0...143.0

1000 : (139.0...145.0)

: 3.50 cm3

: (6.00) 1000

RATED SPEED

Spread

1st version

Control lever

position degrees: 84...92

Setting point:

Speed

rom Rack travel in mm: 0.6

Testina:

1st rack travel in: 10.60

rpm : 915...930 Speed 2nd rack travel in: 4.00 Speed rpm : 950...980 3rd rack travel in: 4.00 rpm : 960...990 Speed 4th rack travel in: 1100 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring rpm : 500 Rack travel in mm: 3.8 Testina: Speed rpm : 100Minimum rack trave: 19.00 rpm : 500 Rack travel in mm : 3.60...4.00 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 11.60...11.70 rpm : 500 2nd speed Rack travel in m: 11.60...11.70 rpm : 700 3rd speed Rack travel in m: 11.60...11.70 5th speed rpm : 550 Rack travel in m: 13.00...13.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 550 rpm Pressure hPa : -Rack travel mm : 9.80...10.00 Measurement 1/min: 550 Speed 1st pressure hPa : 400 Rack travel in m: 10.30...10.60 2nd pressure hPa : 550 Rack travel in m: 11.30...11.40 3rd pressure hPa : 750 Rack travel in m: 11.60...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed rpm : 500 Del.quantity cm3/: 140.0...143.0

1000 s: (137.5...145.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 550 Del.quantity cm3/ : 103.0...105.0 1000 s: (101.0...107.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.60 rpm . 915...930 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE Speed rpm : 500

Rack travel in mm : 4.10...4.50

Del.quantity cm3/ : 15.0...19.0

1000 s: (12.5...21.5)

Spread cm3 : 3.50

1000 s: (5.00)

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Note remarks

Test sheet

: MWM

Edition

: 03.07.92

Replaces

: 04.92

Test oil

: ISO-4113

Combination no. : 0 403 476 118

Injection pump

Pump designation: PES6MW100/720RS1217-

EP type number

: 0 413 406 214

Governor

Governor design. : RSV325...1200MWDA349

Governer no.

: 0 420 085 194

Customer

Customer-spec. information : MWM

Engine

: TD 226 B 6

1st version kW

: 118.0

Rated speed

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Length mm

x Wall thickness

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1175

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3

100 s: (0.6)

rpm : 325.0 2nd speed

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 0.8...1.2 100 s: (0.5...1.4)

Spread

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1175

Aneroid pressure h: 750

Del.quantity : 90.0...0.0 1000 : (94.0...100.0) : 3.50

Spread

cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Setting point:

Speed rpm

Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.20 rpm : 1220...1230 Speed 2nd rack travel in: 4.00 Speed rpm : 1240...1270 3rd rack travel in: 4.00 rpm : 1265...1295 Speed 4th rack travel in: 1350 Speed rpm : 0.30...1.70 LOW IDLE 1 Control Lever position degrees: 65...73 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 6.0 Testina: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 325 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 0.90 Torque control curve - 1st version 1st speed rpm : 1175 Rack travel in m: 9.20...9.30 2nd speed rpm : 750 Rack travel in m: 10.10...10.20 3rd speed rpm : 1025 Pack travel in m: 9.50...9.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : -Pressure Rack travel mm : 8.40...8.50 Measurement 1/min: 500 Speed 1st pressure hPa : 270 Rack travel in m: 9.10...9.20 2nd pressure hPa : 350 Rack travel in m: 9.50...9.80 3rd pressure hPa : 750 Rack travel in m: 10.10,...10.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 750 Speed rpm : 750

Del.quantity cm3/: 104.5...107.5 1000 s: (102.0...110.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 62.5...64.5 1000 s: (60.5...66.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.20 Speed rpm : 1220...1230 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 90.0...110.0 1000 s: (87.0...113.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 325 Rack travel in mm : 6.40...6.60

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

Note remarks

Test sheet

: MB

Edition

: 03.07.92

Replaces

: 04.92

Test oil

: ISO-4113

Combination no.

: 0 403 476 120

Injection bumb

Pump designation : PES6MW100/720RS113

EP type number

: 0 413 406 165

Governor

Governor design.

: RSV350...750MWOA336-

Governer no.

: 0 420 085 198

Customer

Customer-spec. information

Engine .

: OM 366 LA

1st version kW Rated speed

: 87.0 : 1500

: MB-NFZ

TEST BENCH REQUIREMENTS

Test oil

in'et temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.60...3.70

: (3.55...3.75)

Firing order

Rack travel in rm : 9.00...12.00

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 350.0

Rack travel in mm : 5.3...6.3 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread

Speed

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

Del.quantity

: 85.0...87.0 1000 : (83.0...89.0)

: 3.50

cm3 Spread

1000 : (6:00)

RATED SPEED

1st version

Control lever

position degrees: 71...79

Setting point:

Speed

rpm : 800

Rack travel in mm : 0.6

Testina:

1st rack travel in: 11.50

rpm : 750...755 \* Speed

2nd rack travel in: 4.00

Speed rpm : 775...788 4th rack travel in: 850

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 57...61

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.8

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

Speed rpm : 350 Rack travel in mm : 5.30...6.30

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

#### **BREAKAWAY**

1st version 1mm rack travel less than

fuli load rack tr: 11.50

rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

#### LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...6.30
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

## Remarks:

\* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC Edition : 03.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 124 Injection pump Pump designation : PES6MW100/320RS1213 EP type number : 0 413 406 203 Governor Covernor design. : RSV350...1150MW8A347 Governer no. : 0 420 085 202 Customer-spec. information Customer : NAVISTAR : DT-466 Engine : 204.0 1st version kW : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

: 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 1100 Rack travel in mm: 14.90...15.00 Del.guantity cm3/: 16.4...16.6 100 s: (16.2...16.8) Spread cm3 : 0.3100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 1200 : 164.5...166.5 Del.quantity 1000 : (162.5...168.5) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control Lever position degrees: 98...106 Setting point: Speed : 800 rpm

x Length mm

per values \_

BEGINNING OF DELIVERY

Rack travel in mm: 0.6

Testina:

1st rack travel in: 13.90

rpm : 1160...1170 Speed

2nd rack travel in: 4.00

rpm : 1230...1240 Speed

3rd rack travel in: 4.00

rpm : 1235...1245 Speed

4th rack travel in: 1350

rpm : 0.30...1.70Speed

LOW THE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

rpm : 350 Speed

Rack travel in mm: 5.1

Testing:

Speed rpm : 100

Minimum rack trave: 19.00

Speed rpm : 350

Rack travel in mm : 5.00...5.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm Pressure hPa : 1200

: 14.90...15.00 Rack travel mm

Measurement

Speed 1/min: 500

1st press re hPa : -

Rack cravel in m: 9.80...10.00 2nd pressure hPa : 300 Rack travel in m: 11.10...11.20

3rd pressure hPa : 760

Rack travel in m: 13.40...13.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 79.5...83.5

1000 s: (77.5...85.5)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.90

rpm : 1160...1170 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 170.0...190.0

1000 s: (165.0...195.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.00...5.20 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5) cm3 : 3.50

Spread

1000 s: (5.00)

Remarks:

: IHC #1818557C91

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC Edition : 03.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 125 Injection pump Pump designation : PES6MW100/320RS1198-EP type number : 0 413 406 211 Governor Governor design. : RSV350...1100Mw2A347 Governer no. : 0 420 085 203 Customer-spec. information Customer : NAVISTAR Engine : DT-466 1st version kW : 184.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 : (3.20...3.40) Prestroke mm Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 13.9...14.1

100 s: (13.7...14.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 5.1...5.3 Del.quantity cm3/: 1.5...1.9

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 900

Del.quantity : 139.0...143.0)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 87...95

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testina:

1st rack travel in: 11.70 Speed

rpm : 1140...1150

2nd rack travel in: 4.00

rpm : 1195...1205 Speed

3rd rack travel in: 4.00

Speed rpm : 1200...1210 4th rack travel in: 1350

rpm : 0.30...1.70Speed

LOW IDLE 1

Control lever

position degrees: 64...72

Setting point w/out bumper spring

rom : 350 Rack travel in mm: 5.2

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 5.10...5.30

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 mar hPa : 900 Pressure

: 12.70...12.80 Rack travel mm

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 9.50...9.60

2nd pressure hPa : 255

Rack travel in m: 10.30...10.40

3rd pressure hPa : 535

Rack travel in m: 11.80...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed

rpm : 500

Del.quantity cm3/: 83.0...87.0

1000 s: (81.0...89.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 11.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0...180.0

1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 15.5...19.5 1000 s: (13.0...22.0) Spread cm3: 3.50 1000 s: (5.00)

Remarks:

: IHC #1819454C91

Note remarks

Test sheet : KHD 13,4D12 : 26.06.92 Edition

: 10.89 Replaces Test oil : ISO-4113

Combination no. : 0 403 548 025

Injection pump

Pump designation : PE8MW100/720LS1128

EP type number : 0 413 508 103

Governor

Governor design. : RQ300/1150MW63-3 : 0 420 082 030 Governer no.

Customer-spec. information Customer : KHD

Engine : BF 8L 513

1st version kW : 225.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test lines : 1 680 740 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20 : (3.05...3.25)

Rack travel in mm : 9.00...12.90

Firing order : 1-8-7-2-6-5-4- 3

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - \* : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 12.90...13.00

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.5...6.7 Del.quantity cm3/: 1.3...1.7

100 s: (1.1...1.9)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

: 9.00...9.80 travel mm rpm : 1220 2nd speed

: 6.60...6.80 travel mm

3rd speed rpm : 650

travel mm : 5.70...6.30

4th speed rpm : 300

: 1.10...1.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1000

Del.quantity : 142.0...144.0

1000 : (140.0...146.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 29...37 Setting point: Speed rpm : 600 Rack travel in mm: 20.0 Testina: 1st rack travel in: 11.90 Speed rpm : 1190...1200 2nd rack travel in: 4.00 rpm : 1260...1290 Speed 4th rack travel in: 1350 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 7...15 Setting point w/out bumper spring : 300 Speed rom Rack travel in mm: 6.6 Testing: Speed : 100 rpm Minimum rack trave: 8.20 rpm : 300 Speed Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Speed rpm : 320...400 TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 12.90...13.00 rpm : 700 2nd speed Rack travel in m: 13.20...13.30 3rd speed rpm : 800 Rack travel in m: 13.00...13.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 660 : 12.70...12.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.90...12.00 2nd pressure hPa : 530 Rack travel in m: 12.20...12.50

3rd pressure hPa : 1000 Rack travel in m: 13.20...13.30 START CUT-OUT 1/min : 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 142.5...145.5 1000 s: (140.0...148.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 450 Del.quantity cm3/: 107.0...109.0 1000 s: (105.0...111.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1190...1200 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Note remarks

Test sheet : MwM 2,6 a
Edition : 29.06.92
Replaces : 03.90
Test oil : ISO-4113

Combination no. : 9 400 083 422

Injection pump

Pump designation : PES3A80D320/3RS1264 EP type number : 9 400 083 053

Governor

Governor design.: RSV350...1200A2B627R

Governer no. : 9 420 082 194

Customer-spec. information Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30 : (2.15...2.35)

Rack travel in mm: 9.00...12.00

Firing order : 1- 2- 3

Phasing : 0-120-240

Tolerance  $+ - \circ : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 5.0...5.1

100 s: (4.9...5.3)

Spread cm3: 0.2

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 6.9...7.1 Del.quantity cm3/ : 0.7...1.1

100 s: (0.5...1.3)

Spread cm3 : 0.2 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm: 1200

Del.quantity : 50.5...51.5 1000 : (49.0...53.0)

Spread cm3 : 2.50

1000 : (4.00)

RATED SPEED

1st version Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1285...1315

4th rack travel in: 1400

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 16...24

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 490...550

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.40...9.50

2nd speed rpm : 500

Rack travel in m: 9.40...9.60

5th speed rpm : 400

Rack travel in m: 10.60...11.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Remarks:

**APPLICATION** 

Navy

### Note remarks

: MMM 2,6 a 1 : 21.05.92 Test sheet Edition Replaces : 11.89 Test oil : ISO-4113

Combination no. : 9 400 083 423

Injection pump

Pump designation : PES3A80D320/3RS1264 EP type number : 9 400 083 053

Governor

Governor design. : RSV350...900A7B627R

: 9 420 082 193 Governer no.

Customer-spec. information Customer : MWM

Engine : D225-3

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30 : (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 3 Phasing : 0-120-240

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0

Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.8...1.2

100 s: (0.6...1.4)

Spread cm3 : 0.2

100 s: (0.3)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 51.5...52.5 Del.quantity 1000 : (50.0...54.0)

cm3 : 2.50 Spread

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testing:

1st rack travel in: 9.20

Speed rpm : 940...945 2nd rack travel in: 4.00 Speed rpm : 965...978 4th rack travel in: 1100 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 75...83
Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 5.40...5.60 Rack travel in mm : 2.00

Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.20...10.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm: 100

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MWM 3,4 b 1 Edition : 29.06.92 : 03.91 Replaces

Test oil : ISO-4113

Combination no. : 9 400 083 427

Injection pump

Pump designation : PES4A80D320/3RS1265

EP type number : 9 400 083 055

Governor

Governor design. : RSV350...900A7B627R

: 9 420 082 193 Governer no.

Customer-spec. information Customer : MWM

Engine : D225-4

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30

: (2.15...2.35)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0 Rack travel in mm : 7.3...7.5

Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4)

cm3 : 0.2 100 s: (0.3) Spread

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

: 51.5...52.5 Del.quantity

1000 : (50.0...54.0)

cm3 : 2.50 1000 : (4.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testina:

1st rack travel in: 9.20

rpm : 940...945 Speed 2nd rack travel in: 4.00 rpm : 965...978 Speed 4th rack travel in: 1100 Speed nom : 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 75...83 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00

Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900 Rack travel in m: 10.20...10.30

2nd speed rpm : 500 Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 940...945

STARTING FUEL DELIVERY

rpm : 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MWM 5,1 a Edition : 29.06.92 Replaces : 03.91 Test oil : ISO-4113

Combination no. : 9 400 083 429

Injection pump

Pump designation : PES6A80D320/3RS1261 EP type number

: 9 400 083 057

Governor

Governor design. : RSV350...900A79627R

: 9 420 082 193 Governer no.

Customer-spec. information Customer : MWM

Engine : D225-6

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 012

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 003

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.20...2.30

: (2.15...2.35) Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4 Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to tyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00

Difference ° CS : 4.00...5.00

BASIC SETTING

1st speed rpm: 900

Rack travel in mm: 10.20...10.30

Del.quantity cm3/: 5.1...5.2

100 s: (5.0...5.4)

Spread cm3 : 0.2

100 s: (0.4)

2nd speed rpm : 350.0Rack travel in mm: 7.3...7.5 Del.quantity cm3/: 0.7...1.2

100 s: (0.6...1.4)

cm3 : 0.2 Spread 100 s: (0.3)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Del.quantity : 51.5...52.5

1000 : (50.0...54.0)

: 2.50 Spread cm3

1000 : (4.00)

RATED SPEED

1st version

Control lever

position degrees: 107...115

Testina:

1st rack travel in: 9.20

Speed rpm: 940...945 2nd rack travel in: 4.00 Speed rpm: 965...978 4th rack travel in: 1100 Speed rpm: 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 75...83 Setting point w/out bumper spring

Speed rmm: 350 Rack travel in mm: 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00

Speed rpm : 420...480

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.20...10.30

2nd speed rpm : 500

Rack travel in m: 10.20...10.40

5th speed rpm : 400

Rack travel in m: 10.90...11.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.20 Speed rpm : 940...945

STARTING FUEL DELIVERY

Speed rpm: 100

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm: 350

Rack travel in mm : 5.90...6.10

Remarks:

APPLICATION

Generator

Note remarks

Test sheet : CUM 8,3 b14 Edition : 21.05.92 Replaces : D1.91

Test oil : ISO-4113

Combination no. : 9 400 083 458

Injection pump

Pump designation : PES6A100D320/3RS2691

-2

EP type number : 9 410 230 028

Governor

Governor design. : RQV350...1100AB1218-

1R

Governer no. : 9 420 080 302

Customer-spec. information Customer : CUMMINS

Engine : 6 CT

1st version kW : 156.6 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina |

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY
Test pressure har: 29

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance  $+ - \circ : 0.50 (0.75)$ 

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 11.7...11.9

100 s: (11.5...12.1)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1165

travel mm : 7.90...8.10

2nd speed rpm : 350

travel mm : 2.00...2.50

3rd speed rpm : 650

travel mm : 4.50...5.00 4th speed rpm : 1330

4th speed rpm : 1330 travel mm : 9.30...9.80

. 9.30...9.

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1200

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : -Rack travel in m: 11.80...12.10 Speed rpm : 1100 Aneroid pressure h: 800 2nd pressure hPa : 600 Rack travel in m: 13.20...13.30 : 117.0...119.0 1000 : (115.0...121.0) Deliquantity 3rd pressure hPa : 520 : 3.50 Spread cm3 Rack travel in m: 12.40...12.60 1000 : (6.00)START CUT-OUT RATED SPEED Speed 1/min : 270 (290) 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 111...119 Testing: 1st version 1st rack travel in: 11.70 Aneroid pressure h: 800 rpm : 1160...1170 Speed Speed : 700 rom Del.quantity cm3/: 134.0...137.0 1000 s: (131.5...139.5) 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1450 Aneroid pressure h: 800 rpm : 0.00...1.00Speed Speed : 900 rpm Del.quantity cm3/: 126.0...129.0 1000 s: (123.5...131.5) LOW IDLE 1 Control lever Aneroid pressure h: position degrees: 70...78 rpm : 500 Speed Del.quantity cm3/: 93.5...95.5 1000 s: (91.5...97.5) Testing: Speed rom : 100 Minimum rack trave: 10.00 rpm : 350 **BREAKAWAY** Rack travel in mm: 5.90...6.10 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 350...500 Speed full load rack tr: 11.70 TORQUE CONTROL Speed rpm : 1160...1170 Dimension a mm : 1.10 Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 1100 Rack travel in m: 12.70...12.80 and speed rpm : 700 Rack travel in m: 13.80...13.90 2nd speed Speed rpm : 100 Del.quantity cm3/: 160.0...180.0 3rd speed rpm : 850 1000 s: (-) Rack travel in m: 13.50...13.70 Rack travel in mm : 19.00...21.00 rpm : 950 4th speed Rack travel in m: 13.00...13.30 LOW IDLE Aneroid/Altitude Speed rpm : 350
Rack travel in mm : 5.90...6.10
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5) Compensator Test 1st version cm3 : 3.50 Spread Setting 1000 s: (5.50) Speed rpm : 500 hPa : 800 Pressure Remarks: : 13.80...13.90 Rack travel mm : C.D.C. # 3354617 Start-of-delivery mark at 10° cam Measurement rotation angle after start of delivery, Speed 1/min: 500 cylinder 1

C11

Note remarks

Test sheet Edition

: CUM : 21.05.92

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 083 460

Injection pump

Pump designation : PES6A100D320/3RS2827

EP type number

: 9 400 084 030

Governor

Governor design. : RQV350...1200AB1267R

Governer no.

: 9 420 080 319

Customer

Customer-spec. information : CUMMINS

Engine

: 6 CTAA-8.3L

1st version kW Rated speed

: 179.1

: 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening.

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.70...2.80

: (2.65...2.85)

Rack travel in mm : 9.00...12.00

**C13** 

Firing order

: 1-5-3-6-2-4

Phasing

. 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00

& maximum rack tra: 21.00 Difference ° CS : 3.50...4.50

BASIC SETTING

1st speed

rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 350.0

Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250 travel mm

: 8.80...9.00

2nd speed

rpm : 350

travel mm

: 1.40...1.90

3rd speed

rpm : 550

travel mm

: 3.00...3.50

4th speed

rpm : 1000

travel mm

5.90...6.40

5th speed

rpm : 1320

travel mm

Speed

: 9.60...10.10

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1220

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : -Speed rpm : 1100 Aneroid pressure h: 1000 Rack travel in m: 9.60...9.90 2nd pressure hPa : 370 Aneroto process
Del.quantity : 129.0...133.0)
Social cm3 : 3.50 Rack travel in m: 10.20...10.30 3rd pressure hPa : 590 Rack travel in m: 11.40...11.60 1000 : (6.00) START CUT-OUT RATED SPEED Speed  $1/\min: 270 (290)$ 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 118...126 Testing: 1st version 1st rack travel in: 10.40 Aneroid pressure h: 1000 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1200 Del.quantity cm3/ : 119.0...124.0 rpm : 1305...1335 Speed 1000 s: (117.0...126.0) 4th rack travel in: 1450 Aneroid pressure h: 1000 rps : 0.00...1.00 Speed Speed rpm : 750 Del.quantity cm3/: 134.0...137.0 1000 s: (132.0...139.0) LOW IDLE 1 Control lever Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 102.0...104.0 1000 s: (100.0...106.3) position degrees: 65...73 Testing: rpm : 100 Speed Minimum rack trave: 8.50 rpm : 350 **BREAKAWAY** Rack travel in mm : 4.70...4.90 1st version CONSTANT REGULATION 1mm rack travel less than Speed rpm : 350...500 full load rack tr: 10.40 TORQUE CONTROL rpm : 1240...1250 Speed Dimension a mm : 0.60 Torque control curve - 1st ve sion STARTING FUEL DELIVERY 1st speed rpm : 1200 Rack travel in m: 11.40...11.50 2nd speed rpm : 750 Speed rpm : 100 Rack travel in m: 12.00...12.10 Del.quantity cm3/: 166.0...180.0 3rd speed rpm : 1100 Rack travel in m: 12.00...12.10 1000 s: (163.0...183.0) Rack travel in mm: 19.00...21.00 4th speed rpm : 1150 Rack travel in m: 11.70...11.80 LOW IDLE Aneroid/Altitude Speed rpm : 350 Rack travel in mm : 4.70...4.90 Compensator Test Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50 1000 s: (5.50) 1st version Setting rom : 500 hPa : 1000 Speed rpm Pressure Remarks: Rack travel mm : 12.00...12.10 Measurement Start-of-delivery mark 11° cam angle  $1/\min : 500$ Speed after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 21.05.92 Replaces Test oil : ISO-4113 Combination no. : 9 400 083 462 Injection pump Pump designation : PES6A1000320/3RS2691 EP type number : 9 400 084 031 Governor Governor design. : RSV400...900A7C2209-: 9 420 083 262 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CT 8.3 L 1st version kW : 154.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inler temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening 1 pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance  $+ - \cdot : 0.53 (0.75)$ Time to cyl. no. : 1 BEGINNING OF DELIVERY DIFFERENCE betw. rack trav. m: 9.00...12.00 & maximum rack tra: 21.00 Difference \* CS : 3.00...4.00 BASIC SETTING 1st speed rpm: 860 Rack travel in mm : 13.30...13.40 Del.quantity cm3/: 14.1...14.3 100 s: (13.9...14.5) Spread cm3 : 0.3100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 6.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 860 Speed : 141.5...143.5 Del.quantity 1000 : (139.5...145.5) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

per values \_\_\_\_

Test pressure, bar: 25...27

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 107...115

Testing:

1st rack travel in: 12.30 riom : 928...932 Speed 2nd rack travel in: 4.00

Speed rpm : 973...985 4th rack travel in: 1100

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 76...84

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.3

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 riom : 400

Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00 Speed nom : 415...475

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 13.30...13.40

2nd speed rpm : 600

Rack travel in m: 13.30...13.50

5th speed rpm : 450

Rack travel in m: 13.70...14.30

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 928...932

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (132.0...158.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 18.0...22.0

1000 s: (15.5...24.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark at 10° cam 50 rotation angle after start of delivery,

cylinder 1

**APPLICATION** 

Generator

C17

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1- 3- 4- 2 Note remarks Test sheet Edition : 29.06.92 Phasing : 0-90-180-270 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 9 400 085 339 BASIC SETTING Injection pump 1st speed rpm : 1300 Pump designation: PES4A95D410RS2774 EP type number : 9 400 084 019 Rack travel in mm : 11.40...11.50 Governor Governor design. : RQV300...1300AB1066-Del.quantity cm3/: 9.9...10.1 11L : 9 420 080 309 Governer no. 100 s: (9.7...10.3) Customer spec. information Spread cm3 : 0.3Customer : MERCEDES-BENZ 100 s: (0.6) Engine : OM 364 LA rpm : 300.02nd speed 1st version kW : 100.0 Rack travel in mm: 6.9...7.1 Rated speed : 2600 Deliquantity cm3/: 0.7...1.3 100 s: (0.5...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 419 992 198 GUIDE SLEEVE TRAVEL rpm : 1350 1st speed Inlet press., bar: 1.50 travel mm : 8.10...8.30 2nd speed rpm : 300 Test nozzle holder travel mm : 0.80...1.30 assembly : 0 681 343 009 3rd speed rpm : 700 travel mm : 4.00...4.50 Opening 4th speed : 1000 rpm pressure, bar : 172...175 : 5.50...6.00 travel mm 5th speed : 1450 rpm : 8.90...9.40 travel mm Test lines : 1 680 750 015 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 x Length mm : 6.00x1.50x600 rpm : 1395 Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 1300 BEGINNING OF DELIVERY Aneroid pressure h: 800 Del.quantity : yy.u...103.0) Test pressure, bar: 25...27 : 3.20...3.30 Prestroke mm Spread cm3 : 3.50 : (3.15...3.35) 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 107...115

Testing:

1st rack travel in: 10.40

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1445...1475 Speed

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 64...72

Testing:

Speed rpm : 100 Minimum rack trave: 9.00

Speed rpm : 300

Rack travel in mm : 6.90...7.10

CONSTANT REGULATION

rpm : 450...600 Speed

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 1300

Rack travel in m: 11.40...11.50 nd speed rpm : 500 Rack travel in m: 11.80...11.90

2nd speed

3rd speed rpm : 1050

Rack travel in m: 11.60...11.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rom : 500 hPa : 800 Pressure

Rack travel mm : 11.80...11.90

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 8.50...8.80

2nd pressure hPa : 320 Rack travel in m: 9.20...9.40

3rd pressure hPa : 500

Rack travel in m: 10.70...11.00

START CUT-OUT

1/min: 250 (270) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

: 700 Speed rpm

Del.quantity cm3/: 96.0...99.0 1000 s: (93.5...101.5)

Aneroid pressure h: 800 : 1050 Speed rpm

Del.quantity cm3/: 98.0...101.0

1000 s: (95.5...103.5)

Aneroid pressure h: -

Speed com : 500

Del.quantity cm3/: 42.5...44.5

1000 s: (40.5...46.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 80.0...92.0

1000 s: (77.0...95.0)

Rack travel in mm: 13.30...13.50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 30.04.92 Replaces Test oil : ISO-4113 Combination no. : 9 400 085 344 Injection pump Pump designation : PES6A95D41URS2772 EP type number : 9 400 084 018 Seventor Governer no. : 9 420 083 251 Customer-spec, information Customer : MERCEDES-BENZ Engine : OM 366A 1st version kW : 107.3 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

1st speed Governor design. : RSV350...900A7c2076L Spread 2nd speed Spread 1st version Speed Del.quantity Spread cm3 1000 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. per values Testing: BEGINNING OF DELIVERY Test pressure, bar: 25...27 Speed : 3.20...3.30 : (3.15...3.35) Prestroke mm Speed Rack travel in mm : 9.00...12.00 Speed : 0.30...1.70 rom

Firina order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm : 860 Rack travel in mm : 10.40...10.50 Del.quantity cm3/ : 8.5...8.7 100 s: (8.3...8.9) cm3 : 0.3100 s: (0.6) rpm : 350.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.4...1.0 100 s: (0.2...1.2) cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : 5.75FULL LOAD DELIV. AT FULL LOAD STOP rpm : 860 : 85.5...87.5 1000 : (83.5...89.5) : 3,50 : (6.00) position degrees: 104...112 1st rack travel in: 9.40 rpm : 905...910 2nd rack travel in: 4.00 rpm : 930...943 4th rack travel in: 1100

LOW IDLE 1 Control lever

position degrees: 74...82

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speeci rom : 370...430

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 860

Rack travel in m: 10.40...10.50

2nd speed rpm : 500

Rack travel in m: 10.40...10.60

5th speed rpm : 400

Rack travel in m: 11.00...11.60

## **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 78.0...90.0

1000 s: (75.0...93.0)

Rack travel in mm : 12.70...12.90

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 4.0...10.0 1000 s: (2.0...12.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

**APPLICATION** 

Generator

Note remarks

Test sheet Edition

: 30.04.92

Replaces

Test oil

: ISO-4113

Combination no.

: 9 400 085 345

Injection pump

Pump designation : PES6A95D41DRS2795

EP type number

: 9 400 084 020

Covernor

Governor design.

: RSV350...900A7c2076-

Governer no.

: 9 420 083 252

Customer-spec, information

Customer

: MERCEDES-BENZ

Engine

: 0M 366

1st version kW

: 77.3

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. \*C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - •

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 860

Rack travel in mm : 9.00...9.10

Del.guantity cm3/: 6.4...6.6

100 s: (6.2...6.8)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 0.6...1.2

100 s: (0.4...1.4)

cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 6.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 860

Del.quantity

: 64.5...66.5

Spread

1000 : (62.5...68.5) : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Testina:

1st rack travel in: 8.00

Speed

rpm : 910...915

2nd rack travel in: 4.00

rpm : 931...944 Speed

4th rack travel in: 1100

Speed riom : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 76...84 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 6.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.50...6.70 Rack travel in mm : 2.00 Speed rpm : 380...440 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 860 Rack travel in m: 9.00...9.10 2nd speed rpm : 500 Rack travel in m: 9.00...9.20 5th speed rpm : 400 Rack travel in m: 9.70...10.30 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.00 Speed rpm : 910...915 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 78.0...90.0 1000 s: (75.0...93.0) Rack travel in mm: 12.90...13.10 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 6.0...12.0 1000 s: (4.0...14.0) Spread cm3 : 3.501000 s: (5.50)

Remarks:

**APPLICATION** 

Generator

Note remarks

Test sheet

Edition : 30.04.92

Replaces

Test oil : ISO-4113

Combination no. : 9 4**00** 085 346

Injection pump

Pump designation : PES4A95D410RS2805 EP type number : 9 400 084 026

Governor

: RSV350...900A7c2076-Governor design.

: 9 420 083 253 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 364 Engine

1st version kW : 46.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 3.20...3.30 Prestroke mm

: (3.15...3.35)

Rack travel in mm : 9.00...12.00

: 1- 3- 4- 2 Firing order

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 860 1st speed

Rack travel in mm : 8.60...8.70

Del.quantity cm3/ : 5.7...5.9

100 s: (5.5...6.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.4...1.0

100 s: (0.2...1.2)

cm3 : 0.3 100 s: (0.5) Spread

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 6.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 860

: 57.5...59.5 Del.quantity 1000 : (55.5...61.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 108...116

Testing:

1st rack travel in: 7.60

Speed rpm : 910...915 2nd rack travel in: 4.00

rpm : 931...944 Speed

4th rack travel in: 1100

rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.0 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 380...440 Speed TORQUE CONTROL Torque control curve - 1st version nom: : 860 1st speed Rack travel in m: 8.60...8.70 2nd speed rpm : 500 Rack travel in m: 8.60...8.80 5th speed rpm : 400 Rack travel in m: 9.30...9.90 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.60 rpm : 910...915 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 78.0...90.0 1000 s: (75.0...93.0) Rack travel in mm: 13.30...13.50 LOW IDLE Speed rpm : 350 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 4.5...10.5 1000 s: (2.5...12.5) Spread cm3 : 3.501000 s: (5.50) Remarks:

APPLICATION

Generator

Note remarks

Test sheet : MB

Edition : 29.06.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 390AA

Injection pump

Pump designation : PES6P120A720LS7114-3

EP type number : 0 412 726 820

Governor

Governor design. : RQ300/1050PA911

Governer no. : 0 421 801 476

Customer-spec, information

Customer : MERCEDES-BENZ

Engine : 0M447 LA

1st version kW : 257.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Openina |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm: 5.8...6.2

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8

Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 194.0...196.0

1000 : (191.0...199.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm: 20.0

Testing:

1st rack travel in: 11.30

rpm : 1095...1110 Speed

2nd rack travel in: 4.00

Speed rpm : 1150...1180 4th rack travel in: 1300

rpm : 0.00...1.50 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.0 : 300 Speed rpm

Rack travel in mm : 5.80...6.20

Rack travel in mm : 2.00

Speed : 360...400 nom

Aneroid/Altitude Compensator Test

1st version

Settina

Speed : 600 rpm hPa : 1000 Pressure

Rack travel mm : 12.30...12.50

Measurement

1/min : 600 Speed

1st pressure hPa : 300

Rack travel in m: 11.30...11.50

2nd pressure hPa : 400

Rack travel in m: 10.40...10.60

3rd pressure hPa : -

Rack travel in m: 9.30...9.80

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 1050 Speed

Del.quantity cm3/: 198.5...201.5

1000 s: (195.5...204.5)

cm3 : 8.00Spread

1000 s: (12.0)

Aneroid pressure h: 1200 : 750 Speed rpm

Del.quantity cm3/: 202.5...205.5 1000 s: (199.5...208.5)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed : 500 rpm

BREAKAWAY

Del.quantity cm3/: 128.5...130.5

cm3 : 8.00

1000 s: (12.0)

1000 s: (125.5...133.5)

Spread

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1095...1110 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0

:

1000 s: (236.0...264.0)

Remarks:

**C27** 

Note remarks

Test sheet

: 29.06.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 425AA

Injection pump

Pump designation: PES6P120A720LS7181

EP type number : 0 412 725 824

Governor

Governor design. : RQ300/1050PA911-1

: 0 421 801 481 Governer no.

Customer-spec, information

Customer : MERCEDES-BENZ

: 0M447 LA Engine

1st version kW : 294.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 067

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.0 2nd speed

Rack travel in mm: 5.8...6.2

Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3)

cm3 : 0.8

Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 194.0...(199.0)

: 5.00

Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed : 600 rpm Rack travel in mm: 20.0

Testing: 1st rack travel in: 11.30 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 rpm : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.0 Speed rpm : 300 Rack travel in mm : 5.80...6.20 Rack travel in mm : 2.00 rpm : 360...400 Speed Aneroid/Altitude Compensator Test 1st version Setting : 600 Speed rpm Pressure hPa : 1000 Rack travel mm : 12.30...12.50 Measurement  $1/\min : 600$ Speed 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 400 Rack travel in m: 10.40...10.60 3rd pressure hPa : -Rack travel in m: 9.30...9.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm: 1050 Del.quantity cm3/: 198.5...201.5 1000 s: (195.5...204.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 : 750 Speed rpm Del.quantity cm3/: 202.5...205.5 1000 s: (199.5...208.5) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 128.5...130.5 1000 s: (125.5...133.5) cm3 : 8.00 Spread 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.30 Speed rpm : 1095...1110 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 250.0...270.0 1000 s: (246.0...274.0) Remarks:

D01

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 29.06.92 Edition Replaces Test oil : ISO-4113 Combination no. : 9 400 087 425AB Injection pump EP type number : 0 412 726 824 Governor : 0 421 801 481 Governer no. Customer-spec. information Customer : MERCEDES-BENZ Engine : 0M447 LA 1st version kW : 294.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 019 assembly Opening | pressure, bar : 207...210 Orifice plate diameter mm : 0.8 Test lines : 1 680 750 067

Pump designation : PES6P120A720LS7181 Governor design. : RQ300/1050PA911-1 Outside diameter x Wall thickness x Lenath mm : 6.00X1.50X1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_ SCO

Test pressure, bar: 25...27 Prestroke mm : 5.00...5.10 : (4.95...5.15) Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 13.60...13.80 Del.guantity cm3/: 22.9...23.1 100 s: (22.6...23.4) Spread cm3 : 0.5100 s: (0.9) rpm : 300.0 2nd speed Rack travel in mm : 5.8...6.2 Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) Spread cm3 : 0.8100 s: (1.2) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 800 : 229.0...231.0 Del.quantity 1000 : (226.0...234.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Setting point: Speed : 600 rpm Rack travel in mm: 20.0

BEGINNING OF DELIVERY

Testing: 1st rack travel in: 12.70 Speed rpm : 1095...1110 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 rom : 0.00...1.50Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 : 300 Speed rpm Rack travel in mm : 5.80...6.20 Rack travel in mm : 2.00 : 360...400 Speed rom TORQUE CONTROL Dimension a mm : 0.40 2nd speed : 1050 rpm Rack travel in m: 13.60...13.80 3rd speed rpm : 700 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 COM Pressure hPa : 800 : 13.60...13.80 Rack travel mm Measurement  $1/\min : 600$ Speed 1st pressure hPa : 300 Rack travel in m: 11.20...11.40 2nd pressure hPa : 600 Rack travel in m: 13.10...13.30 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 4th pressure hPa : 1100 Rack travel in m: 13.90...14.10 5th pressure hPa : -Rack travel in m: 10.20...10.50 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 1050

Del.quantity cm3/: 229.0...233.0 1000 s: (226.0...236.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 1500 Speed man : 800 Del.quantity cm3/: 244.0...247.0 1000 s: (241.0...250.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed man Del.quantity cm3/: 146.0...148.0 1000 s: (143.0...151.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70 Speed rpm : 1095...1110

Speed

STARTING FUEL DELIVERY

rpm : 190 Del.quantity cm3/: 250.0...270.0 1000 s: (246.0...274.0)

Remarks:

Note remarks

Test sheet

: MB

Edition

: 29.06.92

Replaces

: 03.92

Test oil

: ISO-4113

Combination no. : 9 400 087 433

Injection pump

Pump designation : PES6P120A720LS7176

EP type number

: 0 412 726 821

Governor

Governor design. : RQ300/1050PA911-4

Governer no.

: 9 420 080 318

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: OM447 A

1st version kW

: 210.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening.

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test Lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

Speed

rpm

cm3

BEGINNING OF DELIVERY

Time to cyl. no. : 6

Prestroke mm

Firing order

BASIC SETTING

1st speed

Spread

Spread

Speed

Speed

Spread

1st version

Del.quantity

RATED SPEED

1st version

Setting point:

2nd speed

Phasing

Test pressure, bar: 25...27

Rack travel in mm : 9.00...12.00

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

rpm: 600

cm3 : 0.5

100 s: (0.9)

rpm : 300.0

cm3 : 0.6100 s: (1.2)

Degree: -2

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

rpm : 600

: 215.5...217.5

1000 : (212.5...220.5)

: 5.00

1000 : (9.00)

rpm : 600

100 s: (0.7...1.9)

100 s: (21.2...22.0)

Rack travel in mm : 14.50...14.70

Del.quantity cm3/: 21.5...21.7

Rack travel in mm: 6.0...6.4

Del.quantity cm3/: 1.0...1.6

GUIDE SLEEVE POSITION Control-lever position

Aneroid pressure h: 800

: 5.20...5.30

: (5.15...5.35)

: 6-2-4-1-5-3

: 0-60-120-180-240-300

Rack travel in mm: 20.0

Testing: 1st rack travel in: 12.60 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 Speed rpm : 1160...1190 4th rack travel in: 1260 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rom Rack travel in mm: 6.2 Testina: Speed : 200 rpm Minimum rack trave: 7.70 : 300 rpm Rack travel in mm : 6.00...6.40 Rack travel in mm : 2.00 Speed : 380...420 rpm TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.60...13.80 2nd speed rpm : 750 Rack travel in m: 15.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm Pressure hPa : 800 Rack travel mm : 14.50...14.70 Measurement Speed 1/min: 600 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 550 Rack travel in m: 13.50...13.70 3rd pressure hPa : 1050 Rack travel in m: 14.70...14.80 4th pressure hPa Rack travel in m: 10.70...11.00 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Aneroid pressure h: 1200 Speed : 1050 rom Del.quantity cm3/: 192.5...196.5 1000 s: (189.5...199.5) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1200 Speed : 750 man Del.quantity cm3/: 220.0...223.0 1000 s: (217.0...226.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: : 500 Speed rpm Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 12.60 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 205.0...225.0

1000 s: (201.0...229.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : VOL 12,2 h1 : 21.05.92 Edition : 09.91 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 434 Injection pump Pump designation : PE6P12DA32ORS3178 EP type number : 0 411 826 752 Governor Governor design. : RQV250...1025PA921-2 : 0 421 813 785 Governer no. Customer-spec. information Customer : VOLVO Engine : TD 122 FS 1st version kW : 287.0 Rated speed : 2050 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 019 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8 Test lines : 1 680 750 067 Outside diameter

x Wall thickness x Length mm : 6.00x1.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 900

Prestroke mm : 3.60...3.70 : (3.55...3.75) Rack travel in mm : 9.00...12.00 : 1-5- 3- 6- 2- 4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 25.3...25.5 100 s: (25.0...25.8) Spread cm3 : 0.5100 s: (0.9) rpm : 250.0 2nd speed Rack travel in mm: 4.8...5.1 Del.quantity cm3/: 1.7...2.2 100 s: (1.5...2.5) cm3 : 0.5Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 250 travel mm : 1.00...1.40 2nd speed rpm : 450 travel mm : 3.60...4.20 3rd speed rpm : 800 : 6.30...6.70 travel mm rpm : 1070 4th speed travel mm : 8.00...8.20 5th speed rpm : 1180 : 9.90...10.50 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1130 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700

Aneroid pressure h: 1200

Speed

Del.quantity : 253.0...255.0

1000 : (250.0...258.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testina:

1st rack travel in: 13.00

rpm : 1055...1065 Speed

2nd rack travel in: 4.00

Speed rpm : 1140...1170 4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 59...67

Testina:

Speed : 100 rpm Minimum rack trave: 6.40 Speed rpm

Rack travel in mm : 4.80...5.10

CONSTANT REGULATION

Specd rpm : 250...400

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500 hPa : 1200 Pressure

: 14.00...14.10 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50

2nd pressure hPa : 105

Rack travel in m: 10.50...10.60 3rd pressure hPa : 780

Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -: 700 rpm

Del.quantity cm3/: 163.0...165.0

1000 s: (160.0...168.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1055...1065

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 270.0...310.0 1000 s: (266.0...314.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.80...5.10 Del.quantity cm3/: 17.5...22.5 1000 s: (15.0...25.0)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.

Permissible alteration from 2.20...2.90

Start-of-delivery setting with ROBO

diaphragm.

Note remarks

Test sheet

: SCA

Edition

: 21.05.92

Replaces

Test oil

: ISO-4113

Combination no. : 9 400 087 456

Injection pump

Pump designation : PE6P12OA72ORS7126

EP type number

: 0 412 626 815

Governor

Governor design. : RQV200...1050PA725-5

Governer no.

: 0 421 813 814

Customer

Customer-spec. information : SCANIA

Engine

: DS11

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 019

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.00...5.10

: (4.95...5.15)

Rack travel in mm : 9.00...12.00

800

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

Spread

Spread

rpm: 700

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 23.4...23.6

100 s: (23.1...23.9)

cm3 : 0.6

100 s: (0.9)

rpm : 225.0 2nd speed

Rack travel in mm: 4.5...4.9

Del.quantity cm3/: 1.5...1.9

100 s: (1.2...2.2)

cm3 : 0.3100 s: (0.6)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 225

: 1.20...1.60

travel mm 2nd speed

travel mm

rpm : 350

3rd speed

: 2.30...2.90

travel mm

rpm : 650

4th speed

: 4.00...4.60 rpm : 1095

travel mm 5th speed

: 8.20...8.40

rpm : 1215

travel mm : 9.70,..10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1200

Rack travel in mm : 8.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

Aneroid pressure h: 900 Del.quantity

: 234.0...236.0

1000 : (231.0...239.0)

cm3 : 6.00 Spread

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 13.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1320

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 60...68

Testing:

Speed : 100 rpm Minimum rack trave: 6.10 : 225 Speed rpm

Rack travel in mm : 4.50...4.70

Rack travel in mm : 2.00

: 360...420 Speed rom

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm

Pressure hPa : 900

: 14.10...14.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.50...10.90

2nd pressure hPa : 510

Rack travel in m: 13.00...13.10

3rd pressure hPa : 250

Rack travel in m: 11.10...11.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1050 Del.quantity cm3/ : 222.0...230.0

1000 s: (220.0...232.0)

Aneroid pressure h: -

Speed rpm Del.quantity cm3/: 150.0...154.0

1000 s: (148.0...156.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 275.0...325.0 1000 s: (271.0...329.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 225

Rack travel in mm : 4.50...4.70

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Start-of-delivery setting with ROBO diaphragm.

Note remarks

Test sheet

: 29.06.92 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 459AA

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 726 824

Governor

Governor design: RQ300/1050PA911-2

Governer no. : 9 420 080 313

Customer-spec. information

Customer : MERCEDES-BEN7

Engine : 0M447 LA

1st version kW : 298.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1,50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10

: (4.95...5.15) Rack travel in mm : 9.00...12.00

: 6- 2- 4- 1- 5- 3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm: 5.8...6.2

Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600 Speed

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600 Aneroid pressure h: 1050

Del.quantity 1000

: 194.5...196.5 : (191.0...199.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm : 20.0

Testing: 1st rack travel in: 11.30 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 Testing: Speed : 100 rpm Minimum rack trave: 9.00 : 300 rpm Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rpm : 360...400Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1050 Pressure Rack travel mm : 12.30...12.50 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 400 Rack travel in m: 10.40...10.60 3rd pressure hPa : -Rack travel in m: 9.30...9.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1050 Del.quantity cm3/: 194.0...196.0 1000 s: (191.0...199.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/ : 197.0...200.0

1000 s: (194.0...203.0)

Spread cm3: 8.00 1000 s: (12.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 124.0...126.0 1000 s: (121.0...129.0) Spread cm3: 8.00 1000 s: (12.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 11.30 Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 265.0...285.0 1000 s: (261.0...289.0)

Remarks:

D11

Note remarks

Test sheet : MB

: 29.06.92 Edition

Replaces

Test oil : ISO-4113

: 9 400 087 459AB Combination no.

Injection pump

Pump designation : PES6P120A720LS7181

EP type number : 0 412 726 824

Governor

Governor design: RQ300/1050PA911-2

: 9 420 080 313 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : 0M447 LA

1st version kW : 298.0

Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 105 assembly

Openina |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15) Rack travel in mm : 9.00...12.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 690

Rack travel in mm : 13.60...13.80

Del.guantity cm3/: 23.1...23.3

100 s: (22.8...23.6)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 300.02nd speed

Rack travel in mm: 5.8...6.2 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm:600

Aneroid pressure h: 800 Del.quantity : 231.0...236.0)

: 5.00 : (9.00)

1000

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testina: 1st rack travel in: 12.70 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.50LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.0 : 300 Speed rpm Rack travel in mm: 5.80...6.20 Rack travel in mm : 2.00 Speed rpm : 360...400 TORQUE CONTROL Dimension a mm : 0.40 2nd speed rpm : 1050 Rack travel in m: 13.60...13.80 3rd speed rpm : 700 Rack travel in m: 14.10...14.30 Aneroid/Altitude Compensator Test 1st version Settina Speed : 600 rom hPa : 800 Pressure Rack travel mm : 13.60...13.80 Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.20...11.40 2nd pressure hPa : 600 Rack travel in m: 13.10...13.30 3rd pressure hPa : 1000 Rack travel in m: 13.70...13.80 \* 4th pressure hPa : 1100 Rack travel in m: 13.90...14.10 5th pressure hPa

Rack travel in m: 10.20...10.50

rpm : 1050

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure h: 1500

1/min : 220 (240)

Del.quantity cm3/: 222.0...226.0 1000 s: (219.0...229.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1500 Speed : 800 rpm Del.guantity cm3/: 237.5...240.5 1000 s: (234.5...243.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 265.0...285.0 1000 s: (261.0...289.0) Remarks: \* Increase in control-rod travel with respect to setting at least 0.1 mm

beea

START CUT-OUT

1st version

Speed

Note remarks

Test sheet

Edition

: 29.06.92

Replaces

Test oil

: ISO-4113

Combination no. : 9 400 087 460AA

Injection pump

Pump designation : PES6P120A720LS7114-3

EP type number

: 0 412 726 820

Governor

Governor design. : RQ300/1050PA911-3

Governer no.

: 9 420 080 314

Customer-spec. information

Customer

: MERCEDES-BENZ

Engine

: 0M447 LA

1st version kW

: 260.0

Rated speed

: 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly

: 1 688 901 105

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,8

Test lines

: 1 680 750 067

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order

Prestroke mm

: 6-2-4-1-5-3

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 6

BASIC SETTING

1st speed

rpm: 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/: 19.4...19.6

100 s: (19.1...19.9)

Spread

cm3 : 0.5

100 s: (0.9)

2nd speed

rpm : 300.0

Rack travel in mm : 5.8...6.2

Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

Spread

cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

travel mm : 6.50...6.90

5th speed

travel mm

rpm : 1175 : 9.50...10.00

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 600

Aneroid pressure h: 1050

Anerous Del.quantity 1000 : 194.5...196.5

: (191.0...199.0)

Spread

Speed

cm3 : 5.001000 : (9.00)

D14

RATED SPEED 1st version Setting point: : 600 Speed rom Rack trave in mm : 20.0 Testing: 1st rack travel in: 11.30 rpm : 1095...1110 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 Testing: Speed : 100 rpm Minimum rack trave: 9.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 360...400 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 1050 Pressure : 12.30...12.50 Rack travel mm Measurement  $1/\min: 600$ Speed 1st pressure hPa : 300 Rack travel in m: 11.30...11.50 2nd pressure hPa : 400 Rack travel in m: 10.40...10.60 3rd pressure hPa : -Rack travel in m: 9.30...9.80

Del.quantity cm3/: 194.0...196.0 1000 s: (191.0...199.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 750 Del.quantity cm3/ : 197.0...200.0 1000 s: (194.0...203.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 125.0...127.0 1000 s: (122.0...130.0) Spread cm3 : 8.001000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1095...1110 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 220.0...240.0 1000 s: (216.0...244.0) Remarks:

015

Speed

START CUT-OUT

1st version

Speed

1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

rpm : 1050

Aneroid pressure h: 1200

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet

: MB Edition : 21.05.92

Replaces

Test oil : ISO-4113

Combination no. : 9 400 087 464

Injection pump

Pump designation : PES6P120A720LS7257

EP type number : 9 400 087 081

Governor

Governor design. : RQV300...1050PA1029

: 9 420 080 325 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: OM 447 1A Engine

: 257.6 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 105 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

: 1 680 750 075 Test lines

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 4.60...4.70 Prestroke mm : (4.55...4.75)

Rack travel in mm : 21.00...0.00

: 6-2-4-1-5-3 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 25.8...26.0

100 s: (25.5...26.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 300.02nd speed Rack travel in mm : 5.1...5.4 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1050

travel mm : 7.70...7.90 : 300 2nd speed rpm

0.50...1.00 travel mm

3rd speed rom : 500

: 3.00...3.50 travel mm

: 700 4th speed mar

: 5.20...5.70 travel mm

: 1165 5th speed rpm

: 9.20...9.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1120 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

beed rpm : 700

Aneroid pressure h: 1000

Del.quantity : 258.0...263.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 12.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1300 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 78...86 Testina: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 13.40...13.60 2nd speed rpm : 700 Rack travel in m: 13.60...13.80 rpm : 850 3rd speed Rack travel in m: 13.60...13.80 4th speed rpm : 950 Rack travel in m: 13.40...13.60 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 1000

Pressure Rack travel mm : 13.60...13.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.90 2nd pressure hPa : 250 017

Rack travel in m: 11.10...11.30 3rd pressure hPa : 600 Rack travel in m: 12.90...13.10 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1050 Speed Del.quantity cm3/: 244.5...247.5 1000 s: (241.5...250.5) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: : 500 Speed rpm Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) Spread cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 250.0...270.0 1000 s: (246.0...274.0) Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 5.20...5.30 : (5.15...5.35) Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-3-5-4-2 Test sheet : MB Edition : 21.05.92 Replaces Test oil : ISO-4113 Phasing : 0-72-144-216-288 Combination no. : 9 400 087 467 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 5 Pump designation : PES5P120A720LS7174 EP type number : 0 412 725 806 BASIC SETTING Governor Governor design. : RQ300/1050PA774-8 1st speed rpm: 750 : 9 420 080 328 Governer no. Rack travel in mm : 13.90...14.10 Customer-spec, information Customer : MERCEDES-BENZ Del.quantity cm3/: 19.7...19.9 Engine : OM 449 A 100 s: (19.4...20.2) : 170.0 1st version kW Spread cm3 : 0.5Rated speed : 2100 100 s: (0.9) TEST BENCH REQUIREMENTS 2nd speed rpm : 300.0Test oil Rack travel in mm: 6.6...7.0 inlet temp. °C Del.quantity cm3/: 1.4...2.0 100 s: (1.1...2.3) : 38...42 Overflow valve Spread cm3 : 0.8: 1 419 992 198 100 s: (1.2) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -2 assembly : 1 688 901 105 rpm : 600Speed Rack travel in mm: 19.20...20.80 Openina pressure, bar : 207...210 FULL LOAD DELIV. AT FULL LOAD STOP Orifice plate 1st version diameter mm : 0,8 Speed rpm : 750 Aneroid pressure h: 800 Test lines : 1 680 750 075 cm3 Outside diameter 1000 : (9.00) x Wall thickness : 8.00X2.50X1000 x Length mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Set equal delivery quant. Setting point: per values Speed : 600 rpm Rack travel in mm : 20.0 BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing:

1st rack travel in: 13.00

rpm : 1095...1110 Speed 2nd rack travel in: 4.00 : 1155...1185 Speed COM

4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1

Setting point w/out bumper spring

: 300 rpm Rack travel in mm: 6.8

Testing:

Speed : 100 rpm Minimum rack trave: 9.50 rpm : 300 Speed Rack travel in mm : 6.70...6.90

Rack travel in mm : 2.00 Speed rpm : 395...435

Aneroid/Altitude Compensator Test

1st version Setting

: 600 Speed המיז Pressure hPa : 800

Rack travel mm : 13.90...14.10

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 10.90...11.20

2nd pressure hPa : 270

Rack travel in m: 11.80...11.90

3rd pressure hPa : 450

Rack travel in m: 13.10...13.40

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800 Speed rpm : 1050

Del.quantity cm3/: 193.0...196.0 1000 s: (190.0...199.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 131.0...133.0 1000 s: (128.0...136.0)

Spread cm3 : 8.00

1000 s: (12.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 13.00

Speed rpm : 1095...1110

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 150.0...170.0 1000 s: (146.0...174.0)

Remarks:

Note remarks

Test sheet

: DEE 7,6 h 2

Edition

: 30.04.92

Replaces

: 09.88

Test oil

: ISO-4113

Combination no.

: 9 400 230 066

Injection pump

Pump designation : PES6A100D410RS2676

EP type number

: 9 410 230 023

Governor

Governor design.

: RSV425...1100A2C2161

-1L

Governer no.

: 9 420 234 133

Customer-spec. information Customer

: JOHN DEERE

Engine

: 6466T

1st version kW

: 120.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm

: 2.45...2.55

: (2.40...2.60)

Phasina : 0-60-120-180-240-300

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 425.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 2.1...2.5

100 s: (1.8...2.7)

cm3 : 0.6Spread

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100 Aneroid pressure h: 500

Del.quantity : 99.0...103.0)

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 8.40

rpm : 1145...1155 Speed

2nd rack travel in: 4.00 rpm : 1205...1215 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 425 Rack travel in mm : 4.9 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 425 rpm Rack travel in mm : 5.30...5.50 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 9.40...9.40

2nd speed rpm : 750

Rack travel in m: 10.60...10.80 Aneroid/Altitude Compensator Test 1s' version Set ing Speed : 500 man hPa : 173 Pressure : 10.30...10.40 Rack travel mm Measurement  $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.10...9.30 2nd pressure hPa : 80 Rack travel in m: 9.40...9.80 3rd pressure hPa : 500 Rack travel in m: 10.60...10.70 FUEL DELIVERY CHARACTERISTICS

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.40 Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (185.0...215.0)

Rack travel in mm : 19.40...19.40

HIGH IDLE

1st version Speed rpm : 1195

Rack travel in mm : 4.70...4.90

LOW IDLE

Speed rpm : 425

Rack travel in mm : 5.30...5.50 Del.quantity cm3/ : 21.0...25.0 1000 s: (18.5...27.5)

Spread cm3 : 6.00 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE23746

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

APPLICATION

Tractor (tractor engines)

Note remarks

Test sheet

: DEE 7,6 h12

Edition Replaces : 30.04.92 : 02.90

Test oil

: ISO-4113

Combination no. : 9 400 230 069

Injection pump

Pump designation : PES6A100D410RS2676-1

EP type number

: 9 410 230 024

Governor

Governor design.

: RSV450...1000A1c2186

-1L

Governer no.

: 9 420 234 149

Customer

Customer-spec. information

: JOHN DEERE

Engine

: 6466A

1st version kW

: 140.0

Rated speed

: 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.90x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 32...34

Prestroke mm

: 2.42...2.55

: (2.40.. 2.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1000

Rack travel in mm : 11.60...11.60

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

Spread

cm3 : 0.4

100 s: (0.6)

rpm : 450.0

Rack travel in mm: 5.8...6.0

Del.quantity cm3/: 1.8...2.2

100 s: (1.5...2.4)

Spread

2nd speed

cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Del.quantity

rpm : 1000 : 121.5...123.5

1000 : (119.5...125.0)

Spread

cm3 : 4.00 1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.60 Speed rpm : 1045...1055

2nd rack travel in: 4.00

Speed rpm : 1080...1090

3rd rack travel in: 4.00

Speed rpm : 1070...1100

4th rack travel in: 1150

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

Speed rpm : 450 Rack travel in mm : 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 450

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.60...11.60

2nd speed rpm : 700

Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm: 700

Del.quantity cm3/: 132.0...135.0

1000 s: (130.0...137.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1045...1055

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

Rack travel in mm: 19.00...21.00

HIGH IDLE

1st version

Speed rpm: 1075

Rack travel in mm : 5.90...6.10

LOW IDLE

Speed rpm: 450

27

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE28030

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

**APPLICATION** 

Excavator

D23

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h7 Edition : 30.04.92 Replaces : 6 Test oil : ISO-4113 Combination no. : 9 400 230 072 Injection pump Pump designation : PES6A100D410RS2676 EP type number : 9 410 230 023 Governor Governor design. : RSV400...1100A2B2086 -1L Governer no. : 9 420 234 109 Customer-spec. information : JOHN DEERE Customer Engine : 6466T 1st version kW : 132.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.90x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 10.30...10.40 Del.quantity cm3/: 11.0...11.2 100 s: (10.8...11.4) Spread cm3 : 0.4100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.2...5.4 Del.quantity cm3/: 1.3...1.7 100 s: (1.0...1.9) cm3 : 0.6Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 Aneroid pressure h: 700 Del.quantity : 170.0...114.0) Spread cm3 : 4.00 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 9.30 rpm : 1145...1155 Speed

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 32...34

: 2.45...2.55

: (2.40...2.60)

2nd rack travel in: 4.00

rpm : 1205...1215 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1300

rom : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 24...32

Setting point w/out bumper spring

грт : 400 Rack travel in mm: 4.8

Testing:

Speed : 100 rpm Minimum rack trave: 19.00

Speed rpm : 400

Rack travel in mm : 5.20...5.40

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.30...10.40

rpm : 750 2nd speed

Rack travel in m: 11.70...11.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : 700

Rack travel mm : 11.70...11.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 215

Rack travel in m: 11.30...11.40

3rd pressure hPa : 65

Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750 Del.quantity cm3/ : 126.0...130.0

1000 s: (124.0...132.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 87.0...91.0

1000 s: (85.0...93.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 9.30

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

LOW IDLE

rpm : 400

Speed Rack travel in mm : 5.20...5.40

Del.quantity cm3/: 13.0...17.0

1000 s: (10.5...19.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: JOHN DEERE # RE18160

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark = 15.5° after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h9 Edition : 30.04.92 Replaces : 6 Test oil : ISO-4113 Combination no. : 9 400 230 078 Injection pump Pump designation: PES6A100D410RS2676-1 EP type number : 9 410 230 024 Governor Governor design. : RSV500...900A1B2186-Governer no. : 9 420 234 115 Customer-spec. information Customer : JOHN DEERE Engine : 6466A 1st version kW : 128.0 Rated speed : 1800 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 900 Rack travel in mm : 10.90...11.00 Del.quantity cm3/: 11.8...12.0 100 s: (11.6...12.2) Spread cm3 : 0.4100 s: (0.6) rpm : 500.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.8) cm3 : 0.6Spread 100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 : 118.0...120.0 Del.quantity 1000 : (116.0...122.0) Spread cm3 : 4.00 1000 : (6.50) RATED SPEED 1st version Control lever position degrees: 42...50 Testina: 1st rack travel in: 9.90 rpm : 930...940 Speed

2rd rack travel in: 4.00

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 32...34

: 2.45...2.55

: (2.40...2.60)

: JOHN DEERE # RE19917

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

rpm : 975...985 Speed 3rd rack travel in: 4.00 Speed rpm : 965...995 4th rack travel in: 1050

LOW IDLE 1 Control lever

Speed

position degrees: 22...30 Setting point w/out bumper spring

rpm : 0.30...1.40

Speed rpm : 500 Rack travel in mm: 4.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 500

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 10.90...11.00

2nd speed rpm : 650

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 132.0...136.0

1000 s: (130.0...138.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 930...940

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 500

Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 6.00

1000 s: (8.00)

Remarks:

Spread

027

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 h 5 : 30.04.92 Edition : 12.91 Replaces Test oil : ISO-4113 : 9 400 230 085 Combination no. Injection pump Pump designation : PES6A100D410RS2676-1 EP type number : 9 410 230 024 Governor Governor design. : RSV450...1100A2C2204 Governer no. : 9 420 234 121 Customer-spec. information Customer : JOHN DEERE : 6466T Engine 1st version kW : 119.0 Rated speed : 2200 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 101 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_ BEGINNING OF DELIVERY Test pressure, bar: 32...34

Prestroke mm : 2.45...2.55 : (2.40...2.60) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1100 Rack travel in mm : 9.80...9.90 Del.quantity cm3/: 9.9...10.1 100 s: (9.7...10.3) Spread cm3 : 0.4100 s: (0.6) rpm : 450.02nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.7...2.1 100 s: (1.5...2.4) Spread cm3 : 0.6100 s: (0.8) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1100 : 99.5...101.5 Del.quantity

1000 : (97.5...103.5) : 4.00 Spread cm3 1000 : (6.50) RATED SPEED

1st version Control lever

position degrees: 45...53

Testing:

1st rack travel in: 8.80

Speed rpm : 1145...1155

2nd rack travel in: 4.00

: 1210...1220 Speed rpm

3rd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 22...30

Setting point w/out bumper spring

rom : 450 Rack travel in mm: 5.0

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 450 Speed

Rack travel in mm : 5.40...5.60

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 9.80...9.90

rpm : 500 2nd speed

Rack travel in m: 11.40...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 500 Speed rpm

Del.quantity cm3/: 114.0...118.0

1000 s: (112.0...120.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 190.0...210.0

1000 s: (185.0...215.0)

LOW IDLE

Speed rpm : 450 Rack travel in mm : 5.40...5.60 Del.quantity cm3/ : 17.5...21.5 1000 s: (15.0...24.0)

cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: JOHN DEERE # RE19919

Start-of-delivery mark at control-rod travel 10.5 mm and 15° after start of

delivery.

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 6 Edition : 7.7.92 Replaces : 12.88 Test oil : ISO-4113

Combination no. : 9 400 230 109

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 030

Governor

Governor design. : RSV400...1100A0C2190

-21R

: 9 420 234 164 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT830 Engine

1st version kW : 117.1 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values \_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-130-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.20...10.30

Del.guantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 7.8...8.0

Del.quantity cm3/: 3.2...3.6

100 s: (3.0...3.8) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 89.0...91.0 Del.quantity

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

E02

1st rack travel in: 9.20

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1300

Speed rom : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 25...33

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 7.4

Testina:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 7.80...8.00

Rack travel in mm: 2.00

Speed rpm : 515...575

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100 Rack travel in m: 10.20...10.30

2nd speed rpm : 750

Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 90.5...94.5 1000 s: (88.5...95.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1140...1150 beea

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 7.80...8.00

Del.quantity cm3/: 32.5...36.5 1000 s: (30.5...38.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

: C.D.C. # 3911541

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

E03

### BOSCH INJ. PUMP TEST SPECIFICATIONS

#### Note remarks

Test sheet : DEE 10,1 e : 7.7.92 Edition : 9.87 Replaces

Test oil : ISO-4113

Combination no. : 9 400 231 013

Injection pump

Pump designation : PES6P110A720RS379

Governor

Governor design. : RSV400...1050P0/457

Customer-spec. information Customer : JOHN DEERE

Engine : 6619 T

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 457 413 010

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6,00X1,50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85

: (2.70...2.90)

Rack travel in mm: 10.20

firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

E04

Tolerance  $+ - ^{\circ} : 0.5 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm: 10.20

Del.quantity cm3/: 13.5...13.7

100 s: (13.2...14.0)

cm3 : 0.4Spread

100 s: (-)

rpm : 400 2nd speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 2.1...2.7

100 s: (-)

cm3 : 0.4Spread

100 s: (-)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050 Aneroid pressure h: 800

: 135.0...137.0 Del.quantity

1000 : (132.0...140.0)

: 4.0 Spread cm3

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.20

rpm : 1095...1105 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

4th rack travel in: 1250

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 22.5...30.5 Setting point w/out bumper spring

rpm : 406 Rack travel in mm: 5.40

Testing:

Speed : 100 rom Minimum rack trave: 19.00

Speed rpm : 400 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 520...580 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050 Rack travel in m: 10.20 2nd speed rpm : 630 Rack travel in m: 10.90

Aneroid/Altitude Compensator Test

1st version Setting

Speed rom : 550 hPa : 380 Pressure

Rack travel mm : 10.45...10.55

Measurement

Speed 1/min : 550

1st pressure hPa : 250

Rack travel in m: 9.90...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 630 Del.quantity cm3/ : 145.0...149.0

1000 s: (142.0...151.0)

Spread cm3 : 6.0

1000 s: (-)

Aneroid pressure h: rpm : 550

Del.quantity cm3/: 113.6...121.6

1000 s: (110.6...124.6)

cm3 : 6.0 Spread

1000 s: (-)

**BREAKAWAY** 

1st version 1mm rack travel less than full load rack tr: 9.20

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 190.0... 1000 s: (-)

Rack travel in mm : 19.0...21.0

HIGH IDLE

1st version

Speed rpm : 1150 Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 45.0...55.0 1000 s: (-)

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 20.8...26.8 1000 s: (-)

Remarks:

: JOHN DEERE # AR88759

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1

E05

### BOSCH INJ. PUMP TEST SPECIFICATIONS

#### Note remarks

Test sheet : MAC 11,0 w3 Edition : 26.6.91 Replaces : 2.4.90 Test oil : ISO-4113

Combination no. : 9 400 231 187

Injection pump

Pump designation : PES6P110A720RS6005-1

Governor

Governor design. : RQV300/600...1050PA

586-3K

Cust. part no.

Customer-spec. information Customer : MACK

Engine : EM6-285

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.3

Test nozzle holder assembly

Opening.

pressure, bar : 300...308

Test Lines : 9 681 230 727

Outside diameter x Wall thickness

: 6.35X1.70X990.6 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_

BEGINNING OF DELIVERY

Prestroke mm : 2.8...2.9

: (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - \* : 0.5 (0.75)

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 16.0...16.2

100 s: (15.8...16.4)

cm3 : 0.5Spread

100 s: (0.75)

2nd speed rpm : 300

Rack travel in mm : 4.40...4.60 Del.quantity cm3/: 2.4...2.9

100 s: (2.2...2.9) cm3 : 0.7

Spread

100 s: (1.0)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Del.quantity

: 160.5...162.5 1000 : (158.5...164.5)

RATED SPEED

1st version

Control lever

position degrees: 56.5...61.5

Testing:

1st rack travel in: 12.20

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1240

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 14.5...19.5

Testina:

Speed rpm : 250 Minimum rack trave: 8.90 Speed : 400 rpm

Rack travel in mm : 5.40...6.80

Rack travel in mm: 2.00

Speed rpm : 670...730

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 13.20...13.30

2nd speed rpm : 1000

Rack travel in m: 13.15...13.25

3rd speed rpm : 700 Rack travel in m: 13.75...13.85

4th speed rpm : 600

Rack travel in m: 14.15...14.25

5th speed rpm : 500

Rack travel in m: 13.65...13.75

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 800 rpm

Del.quantity cm3/: 184.0...189.0

1000 s: (182.0...191.0)

Speed rpm : 600 Del.quantity cm3/ : 222.5...226.5

1000 s: (220.0...228.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.20

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...200.0

1000 s: (150.0...210.0)

Rack travel in mm : 10.60...10.70

LOW IDLE

Speed rpm : 300 Rack travel in mm : 24.5...29.5

Del.quantity cm3/: (22.5...31.5)

Remarks:

: MACK #313 GC 5148 P

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to test-

E07

ing of the injection-pump assembly with the genuine engine/nozzle-and-holder

assembly

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VMA Edition : 08.07.92 Calibrating oil : ISO-4113

Injection pump : VE3/10F1600L481 Type number : 0 460 403 015

Customer Part-No. :

Customer-specific information

Customer : VM

Engine : HR 394 HT

Power KW: 51

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina |

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1200 Charge press. hPa: 1000

Setting value mm: 2.40...2.80

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed Charge press hPa: 1000 Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 67.00...68.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 59.00...60.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1700 Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200

Inj.-qty. cm3/

difference 1000s.: -12.00...20.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

E08

1.Speed TD-travel	1/min:	-	‡	Overlow quantity at	overflow valve:
	ाक्याः	-0.801.00#	+	1st speed 1/min:	750
Shutoff			+	Charge press. hPa:	
electromagne	t Volt:	12	+	Shutoff	, , , ,
SP pressdi	f.measu	rement	+	electromagnet Volt:	12
pompa di manu	data (F	P)	1	Overflow :	41.7083.40
1. Speed			+	quantity cm3/10s:	
Charge press			$\perp$	2nd speed 1/min:	
Supply pump			1	Charge press. hPa:	
pressure			1	Shutoff	1050
difference	bar:	-0.100.30*		electromagnet Volt:	12
Shutoff		0.,0	1	Overflow :	
electromagne	t Volt:	12	$\perp$	quantity cm3/10s:	
o coottonag io		, 2	1	quarterey climb tos.	(40.00()4.50
Inspection-p	mo tes	t specifications	I	Delivery-quant. and	hreakaway chan
Test specific	cations	in parentheses	1	becively quart. and	bicakaway chai.
rest specific	cat io is	in pareneses	Ι		
Timing-device	e chara	rteristir:	Ι	1nd speed 1/min:	750
ining acrici	c chara	cter vacit.	Ι		
2nd speed	1/min·	1500	T	Charge-air pressure point hPa:	
Charge press		1000	T		*
TD travel		3.504.30	T		5.0
iv travet		(3.204.60)	Ť	Shutoff	40
Shutoff	11816	(3,20,4.60)	<b>T</b>	electromagnet Volt:	
		12	Ť	Del. quantity cm3/:	
electromagnet			†		(59.0065.00)
3rd speed			†	3rd speed 1/min:	
Charge press	nra:	1000	†	Charge press. hPa:	1000
TD travel		2.402.80	+	Shutoff	
01	mm:	(1.903.30)	+	electromagnet Volt:	
Shutoff		46	+	Del. quantity cm3/:	
electromagne			+		(0.003.00)
4th speed			+	5th speed 1/min:	
Charge press	hPa:	1000	+	Charge press. hPa:	1000
TD travel	men:	1.302.10	+	Shutoff	
	inn:	(1.002.40)	+	electromagnet Volt:	
Shutoff			+	Del. quantity cm3/:	37.0043.00
electromagnet	t Volt:	12	+	1000s.:	(34.0046.00)
			+	9th speed 1/min:	1500
Supply-pump p	oressur	e characteristic:	+	Charge press. hPa:	1000
_			÷	Shutoff	
2nd speed	1/min:	750	+	electromagnet Volt:	12
Charge press.	. hPa:	1000	+	Del. quantity cm3/:	64.0067.00
Supply-pump			+		(62.5068.50)
pressure	bar:	3.804.40	+	12th speed 1/min:	1200
Shutoff			+	Charge press. hPa:	
electromagnet	t Volt:	12	+	Shutoff	
3rd speed	1/min:	1200	+	electromagnet Volt:	12
Charge press.	. hPa:	1000	+	Del. quyntity cm3/:	
Supply-pump		p.	+	1000s.:	(64.5070.50)
pressure	bar:	5.606.20	1	16th speed 1/min:	
Shutoff			+	Shutoff	
electromagnet	t Volt:	12	+	electromagnet volt:	12
4th speed	1/min:		1	Del. quantity cm3/:	
Charge press.			1	1000H.:	
Supply-pump			1	18th speed 1/min:	
pressure	bar	6.907.50	1	Shutoff	
Shutoff	·		1	electromagnet Volt:	12
electromagnet	t Valt:	12	1	Del. quantity cm3/:	50 00 40 00
- 3-001, Omag. 101		• •	1		(56.5062.50)
			1	10000	()0.)00207

20th speed 1/min: 750 Supply pump-Charge press. hPa: 1000 pressure : -0.10...0.30\* Shutoff difference bar: electromagnet Volt: 12 Shutoff Del. quantity cm3/: 66.50...69.50 1000s.: (65.00...71.00) electromagnet Volt: 12 Automatic starting fuel delivery: Mech. shutoff: 1/min: 250 1st speed Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.09) 2nd speed 1/min: 450 Idle delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...70.00 1000s.: (50.00...70.00) 1st speed 1/min: 400 Shutoff 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 1000s.: (3.5) Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 1/min: 440 2nd speed Shutoff electromagnet Volt: 12 Shutoff electromagnet: Del. quantity cm3/: 2.00...8.00 1000s: (1.00...9.00) Cut-in 3rd speed 1/mir: 550 min voltage : 10.0 Shutoff Rated voltage : 12.0 electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S:: (0.00...3.00) Mounting and assembly dimensions: Designation Load-dependent start of delivery: mm: 3.2...3.4 Inj.-qty.dif.measurement: KF mm: 5.8...6.2 mm: 0.6...1.0 mm: 37.2...39.2 mm: 48.3...56.5 1st speed 1/min: 1200 Ya Inj. -qty. cm3/ : -6.00...8.00\* difference 1000s.: -Shutoff Remarks: electromagnet Volt: 12 3rd speed 1/min: 1200 Inj.-qty. cm3/: -12.0...20.0# Overflow restriction 0.55 mm - Part No. Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : 0.80...1.00# difference mm: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: 1000

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : VMA

Edition : 09.07.92 Calibrating oil : ISO-4113

Injection pump : VE3/10F1600L483 Type number : 0 460 403 016

Customer Part-No. :

Customer-specific information

Customer

Engine : HR 394 H

KW: 39 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200

Setting value mm: 2.50...2.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200

Del. quantity cm3/ 1000s.: 45.50...46.50

Snutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000S.: (3.5)

Low-idle speed regulation

1/min: 400

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1620 Speed

Del. quantity cm3/

1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...100.00

1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -18.00...26.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1200

TD-travel

difference mm: -0.80...1.00\*

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP)

1/min: 1200 1.Speed

Supply pump pressure 2nd speed 1/min: 1700 difference bar: -0.10...0.30# Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 1620 electromagnet Volt: 12 Inspection-pump test specifications 5th speed Test specifications in parentheses Shutoff Timing-device characteristic: 1/min: 1500 mm: 3.60...4.40 mm: (3.30...4.70) 2nd speed TD travel Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 mm: 2.50...2.90 mm: (2.00...3.40) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 44.00...47.00 1000s.: (42.50...48.50) 12th speed 1/min: 1200 Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 mm: 1.30...2.10 mm: (1.00...2.40) TD travel Shutoff electromagnet Volt: 12 Del. auyntity cm3/: 45.50...46.50 1000s.: (43.50...48.50) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...49.00 1000s.: (44.50...50.50) 1/min: 600 1st speed Supply-pump pressure bar: 2.80...3.40 Shutoff Mech. shutoff: electromagnet Volt: 12 3rd speed 1/min: 1200 3rd speed Electr. shutoff: Supply-pump bar: 5.30...5.90 pressure 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 4th speed 1/min: 1500 1000s.: (0.00...3.00) Supply-pump Idle delivery: pressure bar: 6.60...7.20 Shutoff 1st speed 1/min: 400 electromagnet Volt: 12 Shutoff Overlow quantity at overflow valve: 1/min: 600 1st speed Shutoff 1000s.: (3.5) 1/min: 550 electromagnet Volt: 12 2nd speed Overflow : 41.70...83.40 Shutoff cm3/10s: (26.70...98.40) 1/min: 1500 quantity electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000S:: (0.00...3.00) 3rd speed 1/min: 440 2nd speed Shutoff. electromagnet Volt: 12 Overflow: 55.60...139.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...8.00 1000s.: (1.00...9.00) cm3/10s: (40.60...154.00) quantity Delivery quant. and breakaway char.:

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1200 Inj.-qty. cm3/ : -15.0..17.0# difference 1000s.: -Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 Inj. qty. cm3/: -18.0..26.0\* difference 1000S.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : -0.80...1.00\* difference mm: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Supply pumppressure : -0.10...0.30# difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...95.00 1000s.: (65.00...95.00) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation

K mm: 3.2...3.4 KF mm: 5.8...6.2 MS mm: 0.6...1.0 Ya mm: 37.2...39.2 Yb mm: 51.5...59.7 Cverflow restriction 0.55 mm - Part No...303

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : OPE : 09.07.92 Edition : 01.08.88 replaces Calibrating oil : ISO-4113 Injection pump : VE4/10F2100L297 Type number : 0 460 404 055 Customer Part-No. : Customer-specific information Customer : OPEL Engine : 2,3 YDR Power KW: 74 TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer: 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder : 1 688 901 000 assembly Opening | Pressure bar: 147.00...150.00 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Indicator setting Piston stroke mm: 1.0 Outlet : D Injection-pump setting values Test specifications in parentheses Timing device travel

1/min: 1500

Charge press. hPa: 1000 Setting value mm: 5.10...5.50

AFB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Supply-pump pressure 1/min: 1500 Charge press hPa: 1000 Setting value bar: 5.10...5.70 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 1200 Speed Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 62.50...63.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0) Full-load del. w/out charge press.: 1/min: 500 Del. quantity cm3/ 1000s.: 38.00...39.00 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Low-idle speed regulation Speed 1/min: 290 Del. quantity cm3/ 1000s.: 13.50...17.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0) Full-load speed regulation Speed 1/min: 2500 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 15.00...21.00 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12

Speed

			+	Shutoff	
Start:			+	electromagnet Volt:	12
			-}-	4th speed 1/min:	
	/min:		+		1000
Del. quantity			+	TD travel mm:	1.502.30
	000s.:	57.00	+		(1.202.60)
KSB/AFB			+	KSB/AFB	
	Volt:	12	+	valve Volt:	12
Shutoff			+	Shutoff	
electromagnet	Volt:	12	+	electromagnet Volt:	
			+	5th speed 1/min:	
Load dependent			+	Charge press. hPa:	1000
Injaty.dif.m	neasure	ement:	+	TD travel mm:	3.704.30
			+		(3.304.70)
	i/min:	1500	+	KSB/AFB	
	cm3/		+	valve Volt:	12
	000s.:	-10.0018.00*	+	Shutoff	
KSB/AFB			+	electromagnet Volt:	12
valve	Volt:	12	-\-\-	9th speed 1/min:	
Shutoff			1		1000
electromagnet	Volt:	12	1		2.704.30 A
TD-travel dif.			1		(2.304.70)
		iniezione (SV)	1	Shutoff	(2.50)
	/min:		1	electromagnet Volt:	12
TD-travel	1 / 117 1 1 1 1	1365	I	10th speed 1/min:	
difference	FINEN *	-0.200.40*	T		
KSB/AFB	41241.	0.200.40^	T		1000
	Volt:	10	T		3.806.20 B
	voct:	12	†		(3.206.80)
Shutoff	Name Laboration	43	†	Shutoff	40
electromagnet			Ť	electromagnet Volt:	12
SP pressdif.	measui	<u> የ</u> የጠቀነገተ			
			T	- 1	
pompa di manda	ata (Fi	P)	Ŧ	Supply-pump pressur	e characteristic
1.Speed 1		P)	Ŧ		
1. Speed 1 Supply pump	ata (Fi	P)	I I I	1st speed 1/min:	2100
1.Speed 1 Supply pump pressure	ata (Fi I/min:	9) 1500	T + + +	1st speed 1/min: Charge press. hPa:	
1.Speed 1 Supply pump pressure difference	ata (Fi I/min:	P)	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min: Charge press. hPa: Supply-pump	2100 1000
1.Speed 1 Supply pump pressure difference KSB/AFB	ata (FF  /min:     bar:	-0.100.30#	T + + + + + + + + + + + + + + + + + + +	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar:	2100
1.Speed 1 Supply pump pressure difference KSB/AFB valve	ata (Fi I/min:	-0.100.30#	+++++++++++++++++++++++++++++++++++++++	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB	2100 1000 6.507.10
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff	ata (Fi  /min:   	7) 1500 -0.100.30# 12	T-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt:	2100 1000 6.507.10
1.Speed 1 Supply pump pressure difference KSB/AFB valve	ata (Fi  /min:   	7) 1500 -0.100.30# 12	T + + + + + + + + + + + + + + + + + + +	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB	2100 1000 6.507.10
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet	bar: Volt:	7) 1500 -0.100.30# 12 12	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt:	2100 1000 6.507.10 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet	bar: Volt:	7) 1500 -0.100.30# 12		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff	2100 1000 6.507.10 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	bar: Volt: Volt:	7) 1500 -0.100.30# 12 12		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min:	2100 1000 6.507.10 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	bar: Volt: Volt:	1500 -0.100.30# 12 12 t specifications		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa:	2100 1000 6.507.10 12 12 1500
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum	bar: Volt: Volt: p test	1500 -0.100.30# 12 12 12 t specifications in parentheses		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump	2100 1000 6.507.10 12 12 1500 1000
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica	bar: Volt: Volt: p test	1500 -0.100.30# 12 12 12 t specifications in parentheses		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar:	2100 1000 6.507.10 12 12 1500
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device	bar: Volt: Volt: no test	1500  -0.100.30#  12  12  t specifications in parentheses steristic:		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB	2100 1000 6.507.10 12 12 1500 1000 5.105.70
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1	bar: Volt: Volt: no test ations charac	1500  -0.100.30#  12  12  12  t specifications in parentheses steristic:		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt:	2100 1000 6.507.10 12 12 1500 1000 5.105.70
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device	bar: Volt: Volt: no test ations charac	1500  -0.100.30#  12  12  12  t specifications in parentheses steristic:  2100 1000		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff	2100 1009 6.507.10 12 12 1500 1000 5.105.70
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press	bar: Volt: Volt: no test ations charac /min: hPa: mm:	1500  -0.100.30#  12  12  12  t specifications in parentheses eteristic:  2100 1000 7.408.20		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel	bar: Volt: Volt: no test ations charac /min: hPa: mm:	1500  -0.100.30#  12  12  12  t specifications in parentheses steristic:  2100 1000	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB	bar: Volt: Volt: no test tions charac /min: hPa: mm: mm:	1500 -0.100.30# 12 12 12 12 specifications in parentheses eteristic: 2100 1000 7.408.20 (7.108.50)		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve	bar: Volt: Volt: no test ations charac /min: hPa: mm:	1500 -0.100.30# 12 12 12 12 specifications in parentheses eteristic: 2100 1000 7.408.20 (7.108.50)		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump	2100 1000 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff	bar: Volt: Volt: np test ations charac /min: hPa: mm: mm: Volt:	1500 -0.100.30# 12 12 12 t specifications in parentheses eteristic: 2100 1000 7.408.20 (7.108.50)		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: Supply-pump pressure bar:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12
1. Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet	bar: Volt: Volt: hp test ations charac hPa: mm: Wolt: Volt:	7) 1500 -0.100.30# 12 12 12 12 12 t specifications in parentheses eteristic: 2100 1000 7.408.20 (7.108.50) 12	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB Valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB	2100 1000 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1	bar: Volt: Volt: hp test ations charac hPa: mm: Volt: Volt: Volt:	7) 1500 -0.100.30# 12 12 12 12 12 t specifications in parentheses eteristic: 2100 1000 7.408.20 (7.108.50) 12 12 12	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt:	2100 1000 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press	bar: Volt: Volt: hPa: hPa: hPa: hPa: hPa:	7) 1500 -0.100.30# 12 12 12 12 12 t specifications in parentheses cteristic: 2100 1000 7.408.20 (7.108.50) 12 12 1500 1000	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff valve Volt: Shutoff	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1	bar: Volt: Volt: hPa: hPa: hPa: hPa: hPa: hPa: hPa: hPa	7) 1500 -0.100.30# 12 12 12 12 15 specifications in parentheses steristic: 2100 1000 7.408.20 (7.108.50) 12 12 1500 1000 5.105.50		1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press TD travel	bar: Volt: Volt: hPa: hPa: hPa: hPa: hPa: hPa: hPa: hPa	7) 1500 -0.100.30# 12 12 12 12 12 t specifications in parentheses cteristic: 2100 1000 7.408.20 (7.108.50) 12 12 1500 1000	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 4th speed 1/min:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00 12
1.Speed 1 Supply pump pressure difference KSB/AFB valve Shutoff electromagnet Inspection-pum Test specifica Timing-device 2nd speed 1 Charge press TD travel KSB/AFB valve Shutoff electromagnet 3rd speed 1 Charge press TD travel KSB/AFB KSB/AFB	bar: Volt: Volt: hPa: hPa: hPa: hPa: hPa: hPa: hPa: hPa	7) 1500 1500 -0.100.30# 12 12 12 12 1500 1000 7.408.20 (7.108.50) 12 12 1500 1000 5.105.50 (4.606.00)	<del></del>	1st speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: 2nd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: 3rd speed 1/min: Charge press. hPa: Supply-pump pressure bar: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt:	2100 1009 6.507.10 12 12 1500 1000 5.105.70 12 12 1200 1000 4.405.00 12

Supply-pump		+ 9th speed 1/min: 2100
pressure bar: Shutoff	4.204.80	+ Charge press. hPa: 1000 + KSB/AFB
electromagnet Volt:	12	+ valve Volt: 12 + Shutoff
Overlow quantity at	overflow valve:	+ electromagnet Volt: 12
1st speed 1/min:	500	pel. quantity cm3/: 50.8053.20 1000s.: (49.7054.30)
KSB/AFB valve Volt:	12	+ 10th speed 1/min: 800 + KSB/AFB
Shutoff	· <del>-</del>	+ valve Volt: 12
electromagnet Volt: Overflow :	41.7083.40	+ Shutoff + electromagnet Volt: 12
quantity cm3/10s:	(26.7098.40)	+ Del. quantity cm3/: 38.5041.50
2nd speed 1/min:		1000s.: -
Charge press. hPa: KSB/AFB		+ 12th speed 1/min: 1200 - Charge press. hPa: 1000
valve Volt: Shutoff	12	+ KSB/AFB + valve Volt: 12
electromagnet Volt:	12	+ Shutoff
Overflow :		+ electromagnet Volt: 12
quantity cm3/10s:	(40.60154.00)	Del. quyntity cm3/: 62.5063.50 1000s.: (60.7065.30)
Delivery quant. and	breakaway chan.:	18th speed 1/min: 500 KSB/AFB
		+ valve Volt: 12
1nd speed 1/min:		+ Shutoff
Charge-air pressure point hPa:		t electromagnet Volt: 12
LDA-stroke mm:		Pel. quantity cm3/: 38.0039.00 + 1000s.: (36.2040.80)
KSB/AFB		20th speed 1/min: 800
valve Volt: Shutoff	12	Charge press. hPa: 1000 KSB/AFB
electromagnet Volt:		+ valve Volt: 12
Del. quantity cm3/:	55.5056.50	+ Shutoff
	(53.0059.00)	+ electromagnet Volt: 12
2nd speed 1/min: Charge press. hPa:		bel. quantity cm3/: 59.5062.50
KSB/AFB		1000s.: -
valve Volt: Shutoff		+ Mech. shutoff:
electromagnet Volt:		+ Electr. shutoff:
Del. quantity cm3/:		1. 1. 200
5th speed 1/min:	(0.003.00)	1st speed 1/min: 290 Del. quantity cm3/: 0.003.00
Charge press. hPa: KSB/AFB		10008.: (0.003.00)
valve Volt: Shutoff	12	Idle delivery:
electromagnet Volt:		1st speed 1/min: 290
Del. quantity cm3/:	15.0021.00 (14.0022.00)	+ KSB/AFB
8th speed 1/min:	2300	+ valve Volt: 12 + Shutoff
Charge press. hPa:		electromagnet Volt: 12
KSB/AFB		+ Del. quantity cm3/: 13.5017.50
valve Volt:	12	+ 1000s.: (11.5019.50)
Shutoff electromagnet Volt:	12	+ Dispersion cm3/: 3.0
Del. quantity cm3/:		1000s.: (3.0) 2nd speed 1/min: 380
1000s.:		+

KSB/AFB Del. quantity cm3/: 55.00...65.00 10005.: (55.00...65.00) valve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 400 2nd speed Del. quantity cm3/: 0.00...2.60 KSB/AFB 1000s.: (0.00...2.60) Volt: 12 valve 1/min: 320 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...53.00 1000s.: (43.00...53.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) 1/min: 100 3rd speed KSB/AFB Volt: 12 valve Load-dependent start of delivery: Shutoff Inj.-qty.dif.measurement: electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1st speed 1/min: 1500 1000s.: (50.00...66.00) Inj.-qty. cm3/ : -6.00...8.00# difference 1000s.: -Shutoff electromagnet: KSB/AFB valve Volt: 12 Cut-in Shutoff min voltage : 10.0 electromagnet Volt: 12 Rated voltage : 12.0 1/min: 1500 3rd speed Inj.—qty. cm3/: -10.0...18.0\* difference 1000s.: -Mounting and assembly dimensions: KSB/AFB Designation valve Volt: 12 K mm: 3.2...3.4 Shutoff mm: 5.6...6.0 KF electromagnet Volt: 12 mm: 0.8...1.2 MS Ya mm: 20.5...22.5 TD-travel dif.measurement: mm: 59.2...73.2 correttore anticipo iniezione (SV): 1/min: 1500 1st speed Remarks: : -0.20...0.40\* TD-travel Operate control lever after each difference mm: manifold-pressure compensator pressure KSB/AFB change. Volt: 12 valve Shutoff \* Correction at adjusting nut (46) electromagnet Volt: 12 SP press.-dif.measurement: Overflow restriction 0.55 mm - Part No. pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-A = KSB adjustment point pressure : -0.10...0.30# B = KSB curve point difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 250 1st speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : OPE Edition : 09.07.92 replaces : 19.07.89 Calibrating oil : ISO-4113 Injection pump : VE4/10F2100L297-1 Type number : 0 460 404 056 Customer Part-No. : Customer-specific information Customer : OPEL : 2,3 YDT Engine KW: 74 Power TEST BENCH REQUIREMENTS Overflow restricti: 1 463 456 303 Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder assembly : 1 688 901 000 Opening | Pressure bar: 147.00...150.00 Test inj. tubing : 1 680 750 017 Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840 Start of delivery Indicator setting Piston stroke mm: 1.0 Outlet Injection pump setting values Test specifications in parentheses

Shutoff electromagnet Volt: 12 Supply-pump pressure Speed 1/min: 1000 Charge press hPa: 1000 Setting value bar: 4.20...4.80 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: 1/min: 1200 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 62.50...63.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Dispersion cm3/: 3.01000s.: (3.0) Full-load del. W/out charge press.: 1/min: 500 Speed Del. quantity cm3/ 1000s.: 40.50...41.50 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Low-idle speed regulation Speed 1/min: 290 Del. quantity cm3/ 1000s.: 13.50...17.50 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0) Full-load speed regulation Speed 1/min: 2500 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 15.00...21.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

Volt: 12

AFB/AFB

valve

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 2.70...3.10

		+	5th speed 1/min:	1500
Start:		+		1000
		+	TD travel mm:	5.205.80
Speed 1/min:		+		(4.806.20)
Del. quantity cm3/:	57.0059.00	+	KSB/AFB	
mind 1000s.:	57.00	+	valve Volt:	12
KSB/AFB	42	+	Shutoff	4.0
Valve Volt:	12	+	electromagnet Volt:	12
Shutoff	12	+	9th speed 1/min:	
electromagnet Volt:	12	<b>T</b>		1000
Load-dependent star	t of delivery:	I		1.503.50 A (1.303.70)
Inj. gty.dif.measure		Ι	Shutoff	(1.303./0/
ziji qeytari medsur	Circl (C)	I	electromagnet Volt:	12
Speed 1/min:	1000	1	10th speed 1/min:	
Injqty. cm3/	.005	1		1000
difference 1000s.:	-22.0024.00*	1	TD travel mm:	3.505.90 B
KSB/AFB		1		(2.906.50)
valve Volt:	12	1	Shutoff	(21/01110190/
Shutoff		+	electromagnet Volt:	12
electromagnet Voit:	12	1		
TD-travel dif.measu		4	Supply-pump pressur	e characteristic:
correttore anticipo	iniezione (SV)	+	a mile as demoke to a confer	
1.Speed 1/min:		+	1st speed 1/min:	2100
TD-travel		1		1000
difference mm:	-1.201.40*	+	Supply-pump	
KSB/AFB		+		6.907.50
valve Volt:	12	+	KSB/AFB	
Shutoff		+	valve Volt:	12
electromagnet Volt:	12	+	Shutofi	
		+	electromagnet Volt:	12
Inspection pump test		+	2nd speed 1/min:	
Test specifications	in parentheses	+	Charge press. hPa:	1000
		+	Supply-pump	
Timing device chara	cteristic:	+		4.204.80
		+	KSB/AFB	
2nd speed 1/min:		+	valve Volt:	12
	1000	+	Shutoff	
	8.008.80	+	electromagnet Volt:	
	(7.709.10)	+	3rd speed 1/min:	
KSB/AFB	45	+	• ,	1000
valve Volt:	12	+	Supply-pump	
Shutoff	40	+	•	3.704.30
electromagnet Volt:		+	KSB/AFB	40
3rd speed 1/min:		†	valve Volt:	12
Charge press hPa:	1000	†	Shutoff	40
	2.703.10	†	electromagnet Volt:	
KSB/AFB	(2.203.60)	†	4th speed 1/min:	
valve Volt:	10	†		1000
Shutoff	12	Ť	Supply-pump	/ 20 / 90
electromagnet Volt:	12	T		4.204.80
4th speed 1/min:		Ι	Shutoff	12
	1000	T	electromagnet Volt:	16
	1.302.10	I	Overlay quantity of	overflow value
	(1.002.40)	I	Overlow quantity at	Over I FOM ANTAGE
KSB/AFB	(1.00.1.2.70)	I	1st speed 1/min:	500
valve Volt:	12		KSB/AFB	700
Shutoff		1	valve Volt:	12
electromagnet Volt:	12	1	racre voct.	
	_			

Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Overflow : 41.7083.40	+ Shutoff
quantity cm3/10s: (26.7098.40)	+ electromagnet Volt: 12
2nd speed 1/min: 2150	+ Del. quantity cm3/: 51.3053.70
Charge press. hPa: 1000	+ 1000s.: -
KSB/AFB	+ 12th speed 1/min: 1200
valve Volt: 12	+ Charge press. hPa: 1000
Shutoff	+ KSB/AFE
electromagnet Volt: 12	+ valve Volt: 12
Overflow : 55.60139.00	+ Shutoff
quantity cm3/10s: (40.60154.00)	+ electromagnet Volt: 12
	+ Del. quyntity cm3/: 62.5063.50
Delivery-quant. and breakaway char.:	† 1000\$.: (60.7065.30)
	+ 16th speed 1/min: 800
A	+ KSB solenoid operated
1nd speed 1/min: 800	+ valve volt: 12
Charge-air pressure-setting	+ Shutoff
point hPa: 500	+ electromagnet volt: 12
LDA-stroke mm: 6.5	+ Del. quantity cm3/: 40.5043.50
KSB/AFB	+ 1000H.: -
valve Volt: 12	+ 18th speed 1/min: 500
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Del. quantity cm3/: 55.5056.50	+ Shutoff
1000s.: (53.0059.00)	+ electromagnet Volt: 12
2nd speed 1/min: 2700	+ Del. quantity cm3/: 40.5041.50
Charge press. hPa: 1000	10005.: (38.7043.30)
KSB/AFB	+ 20th speed 1/min: 800
valve Volt: 12	+ Charge press. hPa: 1000
Shutoff	+ KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Del. quantity cm3/: 0.003.00	+ Shutoff
10005.: -	
5th speed 1/min: 2500	electromagnet Volt: 12
Charge press. hPa: 1000	Del. quantity cm3/: 60.5063.50
KSB/AFB	† 1000s.: -
valve Volt: 12	Mark aboutage.
	+ Mech. shutoff:
Shutoff	The state of the s
electromagnet Volt: 12	+ Electr. shucoff:
Del. quantity cm3/: 15.0021.00	4.4.5.000
1000\$.: (14.0022.00)	1st speed 1/min: 290
8th speed 1/min: 2300	+ Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000	† 1000s.: (0.003.00)
KSB/AF8	†
valve Volt: 12	+ Idle delivery:
Shutoff	†
electromagnet Volt: 12	+ 1st speed 1/min: 290
Del. quantity cm3/: 35.0043.00	+ KSB/AFB
1000\$.: (34.0044.00)	+ valve Volt: 12
9th speed 1/min: 2150	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
KSB/AFB	+ Del. quantity cm3/: 13.5017.50
valve Volt: 12	+ 1000s.: (11.5019.50)
Shutoff	1000s.: (11.5019.50) Dispersion cm3/: 3.0
electromagnet Volt: 12	+ 1000s.: (3.0)
Del. quantity cm3/: 50.3052.70	+ 2nd speed 1/min: 380
1000s.: (49.2053.80)	+ KSB/AFB
10th speed 1/min: 2100	
	+ valve volt: 12
Charge press. hPa: 1000	valve Volt: 12

Shutoff electromagnet Voit: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 320 3rd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 3rd speed 1/min: 1000 cm3/: -22.0...24.0\* Inj.-qty. difference 1000s.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 1000 Inj.-qty. cm3/: -1.50...1.50# difference 1000s.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1000 TD-travel : -1.20...1.40\* difference mm: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 TD-travel : ~0.50...1.10# difference mn: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 250 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.00...63.00 1000s.: (50.00...66.00) 2nd speed 1/min: 400 KSB/AFB valve Volt: 12

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...50.00 1000s.: (40.00...50.00) 3rd speed 1/min: 100 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1000s.: (50.00...66.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.6...6.0 KF MS mm: 0.8...1.2 mm: 37.9...39.9 Ya mm: 39.2...44.8 Yb Remarks: Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ..303

A = KSB adjustment point B = KSB curve point

90SCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : OPE Edition : 09.07.92 : 01.08.88 replaces Calibrating oil : ISO-4113

: VE4/10F2100L297-2 Injection pump : 0 460 404 057 Type number

Customer Part-No. :

Customer-specific information Customer : OPEL

: 2,3 YDT Engine

KW: 74 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting Piston stroke mm: 1.0 **Outlet** : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1000

Setting value mm: 5.10...5.50

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 62.50...63.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 38.00...39.00

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KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 290

Del. quantity cm3/

1000s.: 13.50...17.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 15.00...21.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

E22

Shutoff electromagnet Volt: 12 Start: 1/min: 800 4th speed hPa: 1000 mm: 1.50...2.30 Speed 1/min: 100 Charge press Del. quantity cm3/: 57.00...59.00 mind 1000s.: 57.00 TD travel mm: (1.20...2.60) KSE/AFB KSB/AFB Valve Volt: 12 valve Volt: 12 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 1/min: 1200 5th speed Load-dependent start of delivery: Charge press. hPa: 1000 Inj.-qty.dif.measurement: TD travel mm: 3.70...4.30 mm: (3.30...4.70) Speed 1/min: 1500 KSB/AFB Inj.-qty. cm3/valve Volt: 12 difference 1000s.: -10.00...18.00# Shutoff electromagnet Volt: 12
9th speed 1/min: 300
Charge press. hPa: 1000
TD travel mm: 2.70...4.30 A
mm: (2.30...4.70) KSB/AFE valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement correttore anticipo iniezione (SV) Shutoff 1.Speed 1/min: 1500 electromagnet Volt: 12 TD-travel 10th speed 1/min: 800 difference mm: -0.20...0.40# Charge press. hPa: 1000 KSB/AFB TD travel mm: 3.80...6.20 B valve Volt: 12 mm: (3.20...6.80) Shutoff Shutoff electromagnet Volt: 12 SP press.-dif.measurement electromagnet Volt: 12 pompa di mandata (FP) Supply-pump pressure characteristic: 1.Speed 1/min: 1500 Supply pump 1st speed 1/min: 2100 pressure Charge press. hPa: 1000 difference bar: -0.10...0.30\* Supply-pump KSB/AFB bar: 6.50...7.10 pressure valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1500 Inspection-pump test specifications 2nd speed Test specifications in parentheses Charge press. hPa: 1000 Supply-pump Timing-device characteristic: pressure bar: 5.10...5.70 KSB/AFB 1/min: 2100 2nd speed valve Volt: 12 hPa: 1000 Charge press Shutoff mm: 7.40...8.20 TD travel electromagnet Volt: 12 mm: (7.10...8.50) 3rd speed 1/min: 1200 KSB/AFB Charge press. hPa: 1000 valve Volt: 12 Supply-pump Shutoff pressure bar: 4.40...5.00 electromagnet Volt: 12 3rd speed 1/min: 1500 Charge press hPa: 1000 KSB/AFB valve Volt: 12 Shutoff mm: 5.10...5.50 TD travel electromagnet Volt: 12 mm: (4.60...6.00) 1/min: 300 4th speed KSB/AFB Charge press. hPa: 1000 valve Volt: 12

Supply-pump pressure bar: Shutoff	4.204.80	+	9th speed 1/min: 2100 Charge press. hFa: 1000
electromagnet Volt:	12	Ŧ	KSB/AFB valve Volt: 12 Shutoff
Overlow quantity at	overflow valve:	Ī	electromagnet Volt: 12
1st speed 1/min: KSB/AFB	500	I	Del. quantity cm3/: 50.8053.20 1000s.: (49.7054.30) 10th speed 1/min: 800
valve Volt:	12	Ţ	KSB/AFB
Shutoff	40	+	valve Volt: 12
electromagnet Volt: Overflow:		+	Shutoff
quantity cm3/10s:	(26.7098.40)	I	electromagnet Volt: 12 Del. quantity cm3/: 38.5041.50
2nd speed 1/min:		1	10005.: -
Charge press. hPa: KSB/AFB		‡	12th speed 1/min: 1200 Charge press. hPa: 1000
valve Volt:	120	+	KSB/AFB
Shutoff electromagnet Volt:	12	†	valve Volt: 12
Overflow :	55.60139.00	I	Shutoff electromagnet Volt: 12
quantity cm3/10s:		1	Del. quyntity cm3/: 62.5063.50
•		+	1000s.: (60.7065.30)
Delivery-quant. and	breakaway char.:	+	18th speed 1/min: 500 KSB/AFB
1nd speed 1/min:	900	†	valve Volt: 12
Charge-air pressure		Ī	Shutoff
point hPa:		I	electromagnet Volt: 12 Del. quantity cm3/: 38.0039.00
LDA-stroke mm:		1	1000s.: (36.2040.80)
KSB/AFB		+	20th speed 1/min: 800
valve Volt: Shutoff	12	‡	Charge press. hPa: 1000 KSB/AFB
electromagnet Volt:	12	+	valve Volt: 12
Del. quantity cm3/:	55.5056.50	+	Shutorf
2nd speed 1/min:	(53.0059.00)	†	electromagnet Volt: 12
Charge press. hPa:		I	Del. quantity cm3/: 59.5062.50 1000s.: -
KSB/AFB	1000	1	10000:
valve Volt:	12	+	Mech. shutoff:
Shutoff electromagnet Volt:	10	†	Electr. shutoff:
Del. quantity cm3/:		I	Electi. Shutoit:
	(0.003.00)	1	1st speed 1/min: 290
5th speed 1/min:		+	Del. quantity cm3/: 0.003.00
Charge press. hPa: KSB/AFB		‡	1000s.: (0.003.00)
valve Volt: Shutoff	12	‡	Idle delivery:
electromagnet Volt:		+	1st speed 1/min: 290
Del. quantity cm3/:		+	KSB/AFB
	(14.00,22.00)	†	valve Volt: 12
8th speed 1/min: Charge press. hPa:		İ	Shutoff
KSB/AFB	1000	I	electromagnet Volt: 12 Del. quantity cm3/: 13.5017.50
valve Volt:	12	1	1000s.: (11.5019.50)
Shutoff		+	Dispersion cm3/: 3.0
electromagnet Volt:	12	+	1000s.: (3.0)
Del. quantity cm3/:	<b>35.0043.00</b>	†	2nd speed 1/min: 380
1000s.:	-	+	

KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) 1/min: 320 3rd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 1000s.: (6.50...13.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : -6.00...8.00\* difference 1000S.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 Inj.-qty. cm3/: -10.0...18.0# difference 1000s.: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo injezione (SV): 1st speed 1/min: 1500 : -0.20...0.40# TD-travel difference mm: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pumppressure : -0.10...0.30\* difference bar: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 250 KSB/AFB valve **Volt: 12** Shutoff

Del. quantity cm3/: 55.00...65.00 1090s.: (55.00...65.00) 1/min: 400 2nd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...53.00 1000s.: (43.00...53.00) 1/min: 100 3rd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...59.00 1000s.: (50.00...66.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 mm: 5.6...6.0 KF mm: 0.8...1.2 MS mm: 6.5 LDA stroke mm: 5.0...7.0 Ya Yb mm: 42.5...52.5 Remarks: Operate constrol lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ..303 A = KSB adjustment point B = KSB curve point

electromagnet Volt: 12

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : SOF

Edition : 01.07.92 replaces : 18.07.89 : ISO-4113 Calibrating oil

Injection pump : VE4/10F2050R318 Type number : 0 460 404 059

Customer-specific information Customer : IVECO-SOFIM

Engine : 8144.97.2200

KW: 83 Power

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Indicator setting Piston stroke mm: 1.0 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 600 Speed Charge press. hPa: 800

Setting value mm: 1.10...1.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 600

Charge press hPa: 800 Setting value bar: 3.40...4.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1950 Charge press, hPa: 800 Del. quantity cm3/

1000s.: 56.00...57.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load dei. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/ 1000s.: 12.50...16.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2475 Charge press hPa: 800 Del. quantity cm3/

1000\$.: 14.00...20.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...85.00

1000s.: 55.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min:	600	Supply-pump	
Injqty. cm3/	+		5.205.80
difference 1000s.:	13.0019.00#	Shutoff	• -
Shutoff	+	electromagnet Volt:	12
electromagnet Volt:		3rd speed 1/min:	
TD-travel dif.measur		Charge press. hPa:	800
correttore anticipo		Supply-pump	
1.Speed 1/min:	600 +	pressure bar:	7.207.80
TD-travel	+	Shutoff	
difference mm:	0.600.80#	electromagnet Volt:	12
Shutoff	+	-	
electromagnet Volt:		Overlow quantity at	overflow valve:
SP press.—dif.measur	rement +		
pompa di mandata (FF		1st speed 1/min:	500
1.Speed 1/min:	600 +	Shutoff	
Supply pump	+	electromagnet Volt:	12
pressure	+	Overflow :	41.7083.30
difference bar:	0.100.30'	quantity cm3/10s:	
Shutoff	1	2nd speed 1/min:	
electromagnet Volt:	12 🗼	Charge press. hPa:	
<b>3</b>	<u> </u>	Shutoff	
Inspection-pump test	specifications $\downarrow$	electromagnet Volt:	12
Test specifications		Overflow :	55 60 139 00
	1	quantity cm3/10s:	
Timing-device charac	teristic:	quarterey clips 103.	(3):00:(3):00.
The second secon	1	Delivery-quant. and	hraakaway char
1st speed 1/min:	400	becivery quart. and	Di Cakaway Chai.
Charge press hPa:			
TD travel mm:		1nd speed 1/min:	Kinn+
	(0.801.80)		
electromagnet Volt:		Charge-air pressure	
2nd speed 1/min:		point hPa:	
		LDA-stroke mm:	7.3
	4.205.00	Shutoff	40
	(3.905.30)	electromagnet Volt:	12 57.00 E/ 00
Shutoff	(3.905.30)	Del. quantity cm3/:	33.0034.00 (54.00
	12		(51.0056.00)
electromagnet Volt: 3rd speed 1/min:	16 +		
		2nd speed 1/min:	
	2000 +	Charge press. hPa:	
Charge press hPa:	2000	Charge press. hPa: Shutoff	800
Charge press hPa: TD travel mm:	2000 800 8.709.50	Charge press. hPa: Shutoff electromagnet Volt:	800 12
Charge press hPa: TD travel mm: mm:	2000	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/:	800 12 0.006.00
Charge press hPa: TD travel mm: mm: Shutoff	2000 800 8.709.50 (8.409.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	800 12 0.006.00
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt:	2000 800 8.709.50 (8.409.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min:	800 12 0.006.00 - 2475
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min:	2000 800 8.709.50 (8.409.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa:	800 12 0.006.00 - 2475
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa:	2000 800 8.709.50 (8.409.80) 12 2300 800	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff	800 12 0.006.00 - 2475 800
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	800 12 0.006.00 - 2475 800
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm:	2000 800 8.709.50 (8.409.80) 12 2300 800	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/:	800 12 0.006.00 - 2475 800 12 14.0020.00
Charge press hPa: TD travel mm: shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00)
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 4th speed 1/min:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350
Charge press hPa: TD travel mm: shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80)	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 4th speed 1/min:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press. hPa:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press. hPa: Supply-pump	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press. hPa: Supply-pump	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00 - 2050
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press. hPa: Supply-pump	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00 - 2050
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press hPa: Supply-pump pressure Shutoff bar: Shutoff	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 c characteristic:	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: Shutoff Charge press. hPa: Shutoff	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00 - 2050 800
Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: 4th speed 1/min: Charge press hPa: TD travel mm: mm: Shutoff electromagnet Volt: Supply-pump pressure 1st speed 1/min: Charge press hPa: Supply-pump pressure pressure bar:	2000 800 8.709.50 (8.409.80) 12 2300 800 10.0010.80 (10.0010.80) 12 c characteristic: 600 800 3.404.00	Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 3rd speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa:	800 12 0.006.00 - 2475 800 12 14.0020.00 (11.0023.00) 2350 800 12 31.0039.00 - 2050 800 12

1/min: 1950 6th speed TD-travel dif.measurement: Charge press. hPa: 800 correttore anticipo iniezione (SV): Shutoff 1/min: 600 1st speed electromagnet Volt: 12 TD-travel : 0.60...0.80# Del. quantity cm3/: 56.00...57.00 mm: (0.60...0.80) difference 1000s.: (54.50...58.50) Shutoff 1/min: 1200 7th speed electromagnet Volt: 12 Charge press. hPa: 800 Shutoff SP press.—dif.measurement: electromagnet Volt: 12 pompa di mandata (FP): Del. quantity cm3/: 62.50...65.50 1000s.: -1st speed 1/min: 600 Supply pump-1/min: 500 8th speed pressure : 0.10...0.301 Shutoff difference bar: (0.10...0.30) electromagnet Volt: 12 Shutoff Del. quantity cm3/: 42.50...43.50 electromagnet Volt: 12 1000s.: (40.50...45.50) Automatic starting fuel delivery: Mech. shutoff: 1/min: 350 1st speed Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...70.00 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (50.00...70.00) 1000s.: (0.00...3.00) 1/min: 100 4th speed Idle delivery: Shutoff electromagnet Volt: 12 1/min: 425 Del. quantity cm3/: 55.00...85.00 1st speed Shutoff 1000s.: (55.00...85.00) electromagnet Volt: 12 Del. quantity cm3/: 12.50...16.50 1000s.: (10.50...18.50) Dispersion cm3/: 3.0 Shutoff electromagnet: Cut-in 1000s.: (3.0) min voltage 1/min: 500 2nd speed Rated voltage : 12.0 Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: Del. quantity cm3/: 5.50...10.50 1000s.: (5.50...10.50) mm: 5.6...6.0 mm: 1.6...2.0 KF 1/min: 700 3rd speed MS Shutoff XK mm: 20.0...22.0 electromagnet Volt: 12 Del. quantity cm3/: 2.00...5.00 1000s.: (2.00...5.00) mm: 11.8...15.2 XL mm: 37.9...39.9 Ya mm: 41.6...47.2 Load-dependent start of delivery: Remarks: Inj.-qty.dif.measurement: Overflow restriction 0.55 mm - Part No. ..303 1/min: 600 1st speed Inj. qty. cm3/ : 13.00..19.00# difference 1000s.: (13.00...19.00) \* Correction at adjusting nut (46) Shutoff electromagnet Volt: 12 1/min: 600 cm3/: 11.00..13.00' 2nd speed Inj.-qty. difference 1000s.: (11.00...13.00) Shutoff

electromagnet Volt: 12

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : SOF Edition : 03.07.92 replaces : 17.07.89 Calibrating oil : ISO-4113

: VE4/10F2050R361 Injection pump Type number : 0 460 404 064

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8144.97.2280

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 62.50...63.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 35.50...36.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.7 1000S.: (2.7)

Residual-Delivery Setting

Speed 1/min: 500 Del. quantity cm3/

1000s.: 3.00...7.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 21.00...27.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...90.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Load dependent start of delivery:	+ Charge press. hPa: 1000
<pre>injqty.dif.measurement:</pre>	+ Supply-pump
	+ pressure bar: 4.104.70
Speed 1/min: 1000	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
Inj.—qty. cm3/	+ 2nd speed 1/min: 1000
difference 1000s.: 14.5020.50#	Charge press. hPa: 1000
Shutoff	- Supply-pump
electromagnet Volt: 12	pressure bar: 5.105.70
TD-travel dif.measurement	+ Shutoff
correttore anticipo iniezione (SV)	electromagnet Volt: 12
1.Speed 1/min: 1000	3rd speed 1/min: 2000
Charge press hPa: 1000	Charge press. hPa: 1000
TD-travel	Supply-pump
difference mm: 0.600.30#	pressure bar: 7.307.90
Shutoff	T pressure Sar. 7.307.90  - Shutoff
electromagnet Volt: 12	
SP pressdif.measurement	+ electromagnet Volt: 12
pompa di mandata (FP)	Overland more than the second and the
	Overlow quantity at overflow valve:
1.Speed 1/min: 1000	<b>†</b>
Charge press hPa: 1000	1st speed 1/min: 500
Supply pump	Shutoff
pressure	+ electromagnet Volt: 12
difference bar: 0.100.30*	† Overflow : 41.7083.40
Shutoff	<pre>quantity cm3/10s: (41.7083.40)</pre>
electromagnet Volt: 12	+ 2nd speed 1/min: 2300
	Charge press. hPa: 1000
Inspection pump test specifications	Shutoff
Test specifications in parentheses	electromagnet Volt: 12
, , , , , , , , , , , , , , , , , , , ,	Overflow : 55.60139.00
Timing-device characteristic:	quantity cm3/10s: (55.60139.00)
	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
2nd speed 1/min: 2200	Delivery-quant. and breakaway char.:
Charge press hPa: 1000	Decivery quarter and breakaway trial
TD travel mm: 8.008.80	
mm: (7.709.10)	1nd speed 1/min: 800
Shutoff	
electromagnet Volt: 12	Charge-air pressure-setting
3rd speed 1/min: 1000	point hPa: 400
Charge press hPa: 1000	LDA-stroke mm: 4.8
	Shutoff
TD travel mm: 2.803.20	electromagnet Volt: 12
mm: (2.303.70)	Del. quantity cm3/: 52.5053.50
Shutoff	1000\$.: (50.5055.50)
electromagnet Volt: 12	f 3rd speed 1/min: 2600
4th speed 1/min: 600	Charge press. hPa: 1000
Charge press hPa: 1000	+ Shutoff
TD travel mm: 0.601.40	+ electromagnet Volt: 12
mm: (0.301.70)	+ Del. quantity cm3/: 0.007.00
Shutoff	1000s.: -
electromagnet Volt: 12	5th speed 1/min: 2500
6th speed 1/min: 2000	Charge press. hPa: 1000
Charge press. hPa: 1000	Shutoff
TD travel mm: 7.408.20	electromagnet Volt: 12
mm: (7.108.50)	Del. quantity cm3/: 21.0027.00
Shutoff	1000s.: (20.0028.00)
electromagnet Volt: 12	
Cool and the soce is	
Simply-nime procesing characteristics	+ Charge press. hPa: 1000
Supply-pump pressure characteristic:	+ Shutoff
•	+ electromagnet Volt: 12
1st speed 1/min: 600	,

Del. quantity cm3/: 53.5056.50 1000s.: (52.8057.20)	+ electromagnet Volt: 12 + Del. quantity cm3/: 1.004.00
10th speed 1/min: 1950	10005.: -
Charge press. hPa: 1000	10000
Shutoff	Load-dependent start of delivery:
electromagnet Volt: 12	Injqty.dif.measurement:
Del. quantity cm3/: 56.501.50	+
1000s.: -	+ 2nd speed 1/min: 1000
11th speed 1/min: 800	Charge press. hPa: 1000
Charge press. hPa: 1000 Shutoff	+ Injqty. cm3/: 12.0014.00*
electromagnet Volt: 12	+ difference 1000S.: (12.0014.00) + Shutoff
Del. quantity cm3/: 58.0061.00	+ electromagnet Volt: 12
1000s.: -	+ 4th speed 1/min: 1000
12th speed	Charge press. hPa: 1000
Charge press. hPa: 1000	+ Injqty. cm3/: 14.5020.50#
Shutoff	+ difference 1000s.: (13.5021.50)
electromagnet Volt: 12	Shutoff
Del. quyntity cm3/: 62.5063.50	+ electromagnet Volt: 12
1000\$.: (61.0065.00) 18th speed 1/min: 500	+ 2nd speed 1/min: 1000
Shutoff	+ Charge press. hPa: 1000 + TD-travel : 0.600.80#
electromagnet Volt: 12	+ difference mm: (0.600.80)
Del. quantity cm3/: 35.5036.50	+ Shutoff
1000s.: (33.5038.50)	+ electromagnet Volt: 12
	+ 2nd speed 1/min: 1000
Mech. shutoff:	† Charge press. hPa: 1000
These white the	+ Supply pump-
Electr. shutoff:	+ pressure : 0.100.30*
1st speed 1/min: 425	† difference bar: (0.100.30) † Shutoff
Del. quantity cm3/: 0.003.00	+ electromagnet Volt: 12
1000s.: (0.003.00)	- Cecci diagrice voce. 12
	Part-load del.at 3rd injqty.
Damper set qty.:	+ terza fermo della portata
) FC authoriza	+ stop (EGR set)
LFG-setting: solidale con carcassa:	+ scarico) (ARF)
Idle delivery:	+ gaz d'échappement-ARF) + Spacing mm: 12.0
Total delivery.	T Spacing min. 12.0
1st speed 1/min: 425	1st speed 1/min: 1000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 9.0013.00	f electromagnet Volt: 12
1000S.: (8.0014.00)	+ Del. quantity cm3/: 42.0044.00
2nd speed 1/min: 475 Shutoff	† 1000s.: (40.5045.50)
electromagnet Volt: 12	Automatic starting fuel delivery:
Del. quantity cm3/: 3.009.00	Adequate Starting fact decivery.
1000s.: -	+ 1st speed 1/min: 200
	+ Shutoff
Residual:	+ electromagnet Volt: 12
1 Datasas	+ Del. quantity cm3/: 65.0095.00
1.Rotacao 1/min: 500 Shutoff	10008.: (65.0095.00)
electromagnet Volt: 12	2nd speed 1/min: 350
Del. quantity cm3/: 3.007.00	, with appeal 1/18/11, 220
1000s.: (2.008.00)	+ Shutoff

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

## Mounting and assembly dimensions:

KF mm: 5.6...6.0 MS mm: 1.6...2.0 mm: 33.0...35.0 mm: 49.7...55.3 Ya Yb

## Ajustement Potentiometer:

Angle for

": - 12<-ARF pot.

Supply voltage

pot. volt: 5.00

Output volt

volt: 2.41 pot.

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test scheet : MAN Edition : 07.07.92 replaces : 18.02.91 Calibrating oil : ISO-4113

Injection pump : VE4/10F1350R418 Type number : 0 460 404 069

Customer-specific information

Customer : MAN

Engine : 0 0824 GF01

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 109

Open in a

Pressure bar: 207.00...210.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1000s.: 73.10...74.10

Shutoff

electromagnet Voit: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 300 Speed Del. quantity cm3/

1000s.: 7.60...13.60

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 1370 Speed

Del. quantity cm3/

1000s.: 57.00...63.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity\_cm3/: 40.00...80.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300

TD travel mm: 6.60...7.40

mm: (6.30...7.70)

Shutoff

electromagnet Volt: 24 1/min: 1000 3rd speed

TD travel mm: 3.40...3.80 mm: (2.90...4.30)

Shutoff

electromagnet Volt: 24

4th speed 1/min: 800

mm: 1.10...1.90 TD travel mm: (0.80...2.20)

Shutoff Del. quantity cm3/: 73.10...76.10 1000\$:: (71.60...77.60) electromagnet Volt: 24 1/min: 1000 7th speed Supply—pump pressure characteristic: Shutoff 1/min: 600 1st speed Supply-pump pressure bar: 3.10...3.70 Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 1000 Supply-pump pressure bar: 5.20...5.80 9th speed Shutoff Shutoff electromagnet Volt: 24 3rd speed 1/min: 1300 electromagnet Volt: 24 Del. quantity cm3/: 62.80...68.80 1000s.: (61.80...69.80) Supply-pump pressure bar: 6.90...7.50 Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: Overlow quantity at overflow valve: 1/min: 1300 1st speed Del. quantity cm3/: 0.00...3.00 1st speed 1/min: 600 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 24 electromagnet volt: 24 : 41.70...83.30 Overflow cm3/10s: (41.70...83.30) 1/min: 1300 quantity Electr. shutoff: 2nd speed Shutoff 1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 Overflow : 55.60...139.00 1000s.: (0.00...3.00) cm3/10s: (55.60...139.00) quantity Idle delivery: Delivery-quant. and breakaway char.: 1/min: 300 1st speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 7.00...13.00
1000S.: (5.00...15.00) 2nd speed 1/min: 1550 Shutoff Dispersion cm3/: 6.0 1000s.: (6.5) 1/min: 450 2nd speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...15.00 1000S.: (0.00...15.00) electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1430 4th speed Shutoff Automatic starting fuel delivery: electromagnet Volt: 24 Del. quantity cm3/: 15.00...45.00 1000s.: (15.00...45.00) 5th speed 1/min: 1370 1/min: 350 1st speed Shutoff electromagnet Volt: 24 Shutoff Del. quantity cm3/: 65.00...115.00 electromagnet Volt: 24 Del. quantity cm3/: 57.00...63.00 1000\$.: (55.50...64.50) 1000s.: (65.00...115.00) 2nd speed 1/min: 500 1/min: 1300 6th speed Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

Del. quantity cm3/: 40.00...70.00 1000\$.: (40.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 40.00...80.00 10008:: (40.00...80.00)

# Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

# Mounting and assembly dimensions:

Designation

K KF mm: -

mm: 5.6...6.0 mm: 1.0...1.4 mm: 5.3 MS

SVS max.

Remarks:

Note inst. in remarks column

Test scheet

Edition : 02.07.92 replaces : 10.05.89 Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R342 : 0 460 414 067 Type number

Customer Part-No. :

Customer-specific information Customer : SOFIM

Engine : 8140.07.2700

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1100 Speed

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 525

Del. quantity cm3/

1000s.: 27.00...28.00

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 54.00...55.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 10.50...14.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2300

Del. quantity cm3/

1000s.: 18.00...22.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...80.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1100 Speed Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 16.50...24.50#

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement	+ Overflow : 69.50111.20
correttore anticipo iniezione (SV)	+ quantity cm3/10s: (69.50111.20)
1.Speed 1/min: 1100	+ 2nd speed 1/min: 2000
TD-travel	+ Shutoff
difference mm: 0.400.60#	+ electromagnet Volt: 12
Shutoff	+ Overflow : 83.40180.70
electromagnet Volt: 12	+ quantity cm3/10s: (83.40180.70)
SP pressdif.measurement	+
pompa di mandata (FP)	+ Delivery-quant. and breakaway char.:
1.Speed 1/min: 1100	+
Supply pump	†
pressure	+ 2nd speed 1/min: 2450
difference bar: 0.100.30*	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 0.005.00
Towns at the same town to the same	10008.: (0.005.00)
Inspection-pump test specifications	† 5th speed 1/min: 2300
Test specifications in parentheses	+ Shutoff
Timber de face de la company	+ electromagnet Volt: 12
Timing-device characteristic:	+ Del. quantity cm3/: 18.0022.00
2nd made 4/22 4500	† 1000s.: (15.5024.50)
2nd speed 1/min: 1500	+ 8th speed 1/min: 2200
TD travel mm: 4.104.90	+ Shutoff
mm: (3.905.10)	electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 32.0040.00
electromagnet Volt: 12	+ 1000s.: (30.0042.00)
3rd speed 1/min: 1100	+ 9th speed 1/min: 2000
TD travel mm: 3.103.50	+ Shutoff
mm: (2.703.90)	+ electromagnet Volt: 12
Shutoff	Pol. quantity cm3/: 48.0053.00 D
electromagnet Volt: 12	1000\$.: (47.0054.00) D
4th speed 1/min: 600	† 10th speed 1/min: 1500
TD travel mm: 0.601.40	+ Shutoff
mn: (0.401.60)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 53.2058.20
electromagnet Volt: 12	10008.: (52.2059.20)
Owner to the second of the sec	12th speed 1/min: 525
Supply-pump pressure characteristic:	+ Shutoff
4-1 1 4/ 1 400	+ electromagnet Volt: 12
1st speed 1/min: 600	Pel. quyntity cm3/: 27.0028.00 F
Supply-pump	† 1000\$.: (24.0031.00) F
pressure bar: 4.104.70	† 18th speed 1/min: 1100
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1100	+ Del. quantity cm3/: 54.0055.00 E
Supply-pump	1000s.: (51.0058.00) E
pressure bar: 5.706.30	†
Shutoff	+ Mech. shutoff:
electromagnet Volt: 12	† _, , , , , , , , , , , , , , , , , , ,
3rd speed 1/min: 1500	† Electr. shutoff:
Supply-pump	†
pressure bar: 6.907.50	† 1st speed 1/min: 350
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	† 1000s.: (0.003.00)
Oveniou quentity et evenflou volue.	Tallo dolânama
Overlow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 525	1st speed 1/min. 750
Shutoff	+ 1st speed 1/min: 350
electromagnet Volt: 12	+ Shutoff
CLOCK GRACIEL VOLLE !C	+ electromagnet Volt: 12

Del. quantity cm3/: 10.50...14.50 1000s.: (8.50...16.50) 1/min: 350 1st speed cm3/: 3.0 1000s.: (3.5) 1/min: 600 Dispersion Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...60.00 2nd speed Shutoff 1000s.: (40.00...60.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.00 2nd speed 1/min: 450 1000s.: (0.00...2.00) Shutoff 1/min: 400 3rd speed electromagnet Volt: 12 Shutoff Del. quantity cm3/: 10.00...40.00 1000s.: (10.00...40.00) electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) 5th speed 1/min: 300 Del. quantity cm3/: 26.00...36.00 1000s.: (25.00...37.00) 1/min: 100 4th speed Soutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: Shutoff electromagnet: 1st speed 1/min: 1100 Cut-in Inj.—qty. cm3/ : 13.30..15.30\* min voltage : 10.0 difference 1000s.: (13.30...15.30) Rated voltage : 12.0 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Inj.-qty. cm3/: 16.50..24.50# Mounting and assembly dimensions: Designation difference 1000s.: (16.50...24.50) K mm: -Shutoff KF mm: K-OT electromagnet Volt: 12 MS mm: 0.8...1.2 5th speed 1/min: 1100 SVS max. mm: 3.5 mm: 7.2 Inj.-qty. cm3/: 2.00...8.00' HBA stroke mm: 36.9...40.9 difference 1000s.: (2.00...8.00) Ya Shutoff Yb mm: 38.8...44.2 electromagnet Volt: 12 Remarks: TD-travel dif.measurement: : correttore anticipo iniezione (SV): 1st speed 1/min: 1100 TD-travel : 0.40...0.60# difference mm: (0.40...0.60) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 : 0.00...0.80' TD-travel mm: (0.00...0.80) difference Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1100 Supply pumppressure : 0.10...0.30\* difference bar: (0.10...0.30) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery:

Note inst. in remarks column

Test scheet

: 03.07.92 Edition : 24.10.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R350 Type number : 0 460 414 070

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.27.2780

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000 Setting value bar: 5.60...6.20

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 55.00...56.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 16.50...17.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 19.50...25.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...80.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1300 Charge press hPa: 1000

Inj.-qty. cm3/

difference 1000s.: 22.00...30.00'

Shutoff 4	Supply-pump	
electromagnet Volt: 12		7 (0 0 00
TD-travel dif.measurement		7.608.20
	Shutoff	40
correttore anticipo iniezione (SV)	electromagnet Volt:	12
1. Speed 1/min: 1300		
Charge press hPa: 1000	Overlow quantity at	overflow valve:
TD-travel +		
difference mm: 1.902.10'	1st speed 1/min:	500
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt:	12
SP pressdif.measurement +	Overflow:	41.7083.40
pompa di mandata (FP)	quantity cm3/10s:	(41.7083.40)
1.Speed 1/min: 1300	2nd speed 1/min:	
Charge press hPa: 1000	Charge press. hPa:	
Supply pump	Shutoff	100.0
pressure	electromagnet Volt:	10
difference bar: 0.100.30*	Overflow	TE 40 470 00
Shutoff		55.60139.00
	quantity cm3/10s:	(33.60139.00)
electromagnet Volt: 12		
<u> </u>	Delivery-quant. and	breakaway char .:
Inspection pump test specifications +		
Test specifications in parentheses +		
+	1nd speed 1/min:	800
Timing-device characteristic:	Charge-air pressure	-settina
1	point hPa:	
2nd speed 1/min: 1900 4	LUA-stroke mm:	
Charge press hPa: 1000	Shutoff	0.5
TD travel mm: 7.107.90	electromagnet Volt:	12
mm: (6.808.20)	Del. quantity cm3/:	/2 50 /7 50
Shutoff	vet. quarterty this/:	42.0040.00
•	10005.:	(39.0047.00)
electromagnet Volt: 12	2nd speed 1/min:	
3rd speed 1/min: 1100 +	Charge press. hPa:	1000
Charge press hPa: 1000	Shutoff	
TD travel mm: 2.202.60	electromagnet Volt:	
mm: (1.703.10)	Del. quantity cm3/:	0.005.00
Shutoff	1000s.:	(0.005.00)
electromagnet Volt: 12	5th speed 1/min:	
4th speed 1/min: 900	Charge press. hPa:	
Charge press hPa: 1000	Shutoff	1000
TD travel mm: 0.601.40	electromagnet Volt:	12
mm: (0.301.70)	Del. quantity cm3/:	
Shutoff		(18.0027.00)
electromagnet Volt: 12	8th speed 1/min:	
Complete mean annual about the state of	Charge press. hPa:	1000
Supply-pump pressure characteristic:	Shutoff	
†	electromagnet Volt:	
1st speed 1/min: 500	Del. quantity cm3/:	40.0048.00
Charge press. hPa: 1000	1000s.:	(38.0050.00)
Supply-pump +	9th speed 1/min:	1900
pressure bar: 3.604.20 +	Charge press. hPa:	
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt:	12
2nd speed 1/min: 1100	Del. quantity cm3/:	
Charge press. hPa: 1000	10000	(50.0057.00)
Supply-pump pressure bar: 5.606.20	12th speed 1/min:	
	Charge press. hPa:	LUUU
Shutoff +	Shutoff	40
electromagnet Volt: 12	electromagnet Volt:	
3rd speed 1/min: 1900 +	Del. quyntity cm3/:	
Charge press. hPa: 1000	1000s.:	(52.0059.00)

15th speed 1/min: Charge press. hPa: Shutofi		‡	Charge press. hPa: 1000 Injqty. cm3/: 22.00. difference 1000S.: (22.00.	
electromagnet Volt:	12	+	Shutoff	
Del. quantity cm3/:	52.5057.50	1	electromagnet Volt: 12	
10005	(51.0059.00)	1		
		T	5th speed 1/min: 1300	
17th speed 1/min:		t	Charge press. hPa: 1000	
Charge press. hPa:	1000	+	Injaty. cm3/: 2.00	.8.90#
Shutoff		+	difference 1000s.: (2.00	8 . 00)
electromagnet volt:	12	1	Shutoff	
Del. quantity cm3/:		1	electromagnet Volt: 12	
		T		
	(48.0056.00)	+	2nd speed 1/min: 1300	
18th speed 1/min:	500	+	Charge press. hPa: 1000	
Shutoff		+	TD-travel : 1.90	.2.10'
electromagnet Volt:	12	1	difference mm: (1.90.	2 10)
Del. quantity cm3/:		1	Shutoff	,
		T		
	(13.5020.50)	+	electromagnet Volt: 12	
20th speed 1/min:		+	4th speed 1/min: 1300	
Charge press. hPa:	1000	+	Charge press. hPa: 1000	
Shutoff		1	TD-travel : 2.00	2 80#
electromagnet Volt:	12	Ł		
		T	difference mm: (2.00.	
Del. quantity cm3/:		+	2nd speed 1/min: 1300	
7000S.:	(46.0057.00)	+	Charge press. hPa: 1000	
		4	Supply pump-	
Mech. shutoff:		1	pressure : 0.10 difference bar: (0.10	13 30 F
THE STATE OF THE S			difference have (0.10	0.70
The same of the same of the		<b>T</b>	difference bar: (U.IU	
Electr. shutoff:		+	Shutoff	
		+	electromagnet Volt: 12	
1st speed 1/min:	325	+		
Del. quantity cm3/:		1	Part-load del.at 3rd injd	***
	(0.003.00)	T		1ra.
10005.:	(0.005.00)	†	terza fermo della portata	
		+	stop (EGR set)	
Idle delivery:		+	scarico) (ARF)	
		1	gaz d'échappement-ARF)	
1st speed 1/min:	325	1	Spacing mm: 12.0	
Shutoff	JEJ	T	Spacing ma. (2.0	
	40	<b>†</b>		
electromagnet Volt:		+	1st speed 1/min: 1000	
Del. quantity cm3/:	10.0014.00	+	Charge press. hPa: 1000	
1000s.:	(8.0016.00)	1	Shutoff	
Dispersion cm3/:		1	electromagnet Volt: 12	
10000		T		7 40
1000s.:		†	Del. quantity cm3/: 6.10	
2nd speed 1/min:	450	+	1000s.: (3.10	10.10)
Shutoff		+		
electromagnet Volt:	12	1	Automatic starting fuel del	iverv.
Del. quantity cm3/:		1	resonation bear times race act	
10000	(0.005.00)	1	1ah amand 1/ 700	
10003.;	(0.005.00)	<b>T</b>	1st speed 1/min: 300	
5th speed 1/min:		+	Shutoff	
Del. quantity cm3/:	33.0043.00	+	electromagnet Volt: 12	
1000s.:	(32.0044.00)	1	Del. quantity cm3/: 50.00	80 OO
		1	1000s.: (50.00.	80 00)
Load-danandant atant		T	10003.1 (30,00.	00.007
Load dependent start		†		
Injqty.dif.measure	ement:	+	2nd speed 1/min: 400	
		+	Shutoff	
2nd speed 1/min:	1300	1	electromagnet Volt: 12	
Charge press. hPa:		1		<u>ኖ</u> ስ ብስ
		T	Del. quantity cm3/: 20.00	
	18.0020.00*	T	1000s.: (20.00.	>U.UU)
difference 1000s.:	(18.0020.00)	+		
Shutoff		+	4th speed 1/min: 100	
electromagnet Volt:	12	1	Shutoff	
4th speed 1/min:		1	· ·	
THE SPOCE IN HITTE	1500	Т	electromagnet Volt: 12	

Del. quantity cm3/: 40.00...80.00 1000s.: (40.00...80.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

#### Designation

K mm: 3.2...3.4 KF mm: K-OT MS mm: 0.6...1.0 SVS max. mm: 0.8 mm: 32.0...36.0 Ya mm: 42.9...47.1 Yb

#### Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : SOF Edition : 03.07.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R393 Type number : 0 460 414 078

Customer Part-No. :

Customer-specific information

Customer : SOFIM

: 8140.47.2700 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000 Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1800 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Full-load del. w/out charge press.:

1/min: 550

Del. quantity cm3/

1000s.: 24.50...25.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 40.00...46.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...70.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1100 Charge press hPa: 1000

Inj.-qty. cm3/

difference 1000s.: 25.50...33.50#

Shutoff	+	Supply-pump	
electromagnet Volt: 12	+	pressure bar:	6.807.40
TD-travel dif.measurement	+	Shutoff	
correttore anticipo iniezione (SV)	+	electromagnet Volt:	12
1. Speed 1/min: 1100	+	<b>-</b>	
Charge press hPa: 1000	+	Overlow quantity at	overflow valve:
TD-travel	1	avar con quarters, as	
difference mm: 0.700.90#	1	1st speed 1/min:	550
Shutoff	1	Shutoff	<b>770</b>
electromagnet Volt: 12	1	electromagnet Volt:	12
SP press.—dif.measurement	1	Overflow	75 00 110 50
pompa di mandata (FP)	I	Overflow : guantity cm3/10s:	/75 nn 440 sn
1.Speed 1/min: 1100	T	2nd speed 1/min:	1000 117.JU.
Charge press hPa: 1000	T		
	T	Charge press. hPa:	1000
Supply pump	Ť	Shutoff	40
pressure	+	electromagnet Volt:	
difference bar: 0.100.30*	+	Overflow :	
Shutoff	+	quantity cm3/10s:	(97. <i>3</i> 0180.70)
electromagnet Volt: 12	+		
	+	Delivery-quant. and	breakaway char.
Inspection-pump test specifications	+		
Test specifications in parentheses	+		
	+	1nd speed 1/min:	700
Timing-device characteristic:	1	Charge-air pressure	
	1	point hPa:	
3rd speed 1/min: 1100	1	LDA-stroke mm:	
Charge press hPa: 1000	1	Shutoff	0.0
TD travel mm: 1.401.80	$\perp$	electromagnet Volt:	12
mm: (0.902.30)	-		
Shutoff	T	Del. quantity cm3/:	
electromagnet Volt: 12	T		(45.5053.50)
5th annual 1/min. 1000	Ť	2nd speed 1/min:	
5th speed 1/min: 1900	1	Charge press. hPa:	1000
Charge press. hPa: 1000	+	Shutoff	
TD travel mm: 5.406.20	+	electromagnet Volt:	
mm: (5.406.20)	+	Del. quantity cm3/:	0.005.00
Snutoff	+	1000s.:	(0.005.00)
electromagnet Volt: 12	+	3rd speed 1/min:	2200
6th speed 1/min: 1500	+	Charge press. hPa:	1000
Charge press. hPa: 1000	+	Shutoff	
TD travel mm: 3.204.00	1	electromagnet Volt:	12
nm: (2.904.30)	1	Del. quantity cm3/:	19.00 27.00
Shutoff	1		(17.0029.00)
electromagnet Volt: 12	1	5th speed 1/min:	
Trouble small recorded to the same same same same same same same sam	1	Charge press. hPa:	
Supply-pump pressure characteristic:	I	Shutoff	1000
supply pump pressure that atter is tit.	T		13
2nd around 1/min. 1100	Ť	electromagnet Volt:	
2nd speed 1/min: 1100	<b>†</b>	Del. quantity cm3/:	
Charge press. hPa: 1000	†		(38.5047.50)
Supply-pump	+	9th speed 1/min:	
pressure bar: 5.606.20	+	Charge press. hPa:	1000
Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	12
3rd speed 1/min: 1900	+	Del. quantity cm3/:	
Charge press. hPa; 1000	1		(57.0064.00)
Supply-pump	+	12th speed 1/min:	
pressure bar: 8.008.60	1	Charge press. hPa:	
Shutoff	1	Shutoff	, 555
electromagnet Volt: 12	$\perp$	electromagnet Volt:	12
4th speed 1/min: 1500	1	Del. quyntity cm3/:	
Charge press. hPa: 1000	Ι		(57,50,64,50)
THE PERSON HELD AND A PARTY OF THE PARTY OF		{   A R I N	

15th speed 1/min: 1400 Charge press. hPa: 1000 Shutoff	Shutoff electromagnet Volt: 12 5th speed 1/min: 1100
electromagnet Volt: 12 Del. quantity cm3/: 56.0061.00 1000s.: (54.5062.50) 17th speed  1/min: 1100	<pre>- Charge press. hPa: 1000 - Injqty. cm3/: 2.008.00' - difference 1000s.: (2.008.00) - Shutoff</pre>
Charge press. hPa: 1000 Shutoff electromagnet volt: 12	- electromagnet Volt: 12 - 2nd speed 1/min: 1100 - Charge press. hPa: 1000
Del. quantity cm3/: 55.0060.00 1000H.: (53.5061.50) 18th speed 1/min: 550	TD-travel : 0.700.90# + difference mm: (0.700.90) - Shutoff
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 24.5025.50 1000s.: (21.5028.50)	+ electromagnet Volt: 12 + 4th speed 1/min: 1100 + Charge press. hPa: 1000
1000S.: (21.5028.50)  20th speed 1/min: 550  Charge press. hPa: 1080  Shutoff	TD-travel : 0.401.20' difference mm: (0.401.20) 2nd speed 1/min: 1100 Charge press. hPa: 1000
electromagnet Volt: 12 Del. quantity cm3/: 56.5065.50 1000s.: (55.5066.50)	- Supply pump- - pressure : 0.100.30* - difference bar: (0.100.30)
Mech. shutoff:	Shutoff electromagnet Volt: 12
Electr. shutoff:	Automatic starting fuel delivery:
1st speed	+ 1st speed 1/min: 300 + Shutoff + electromagnet Volt: 12
Idle delivery:	+ Del. quantity cm3/: 40.0080.00 + 1000s.: (40.0080.00)
1st speed 1/min: 375 Shutoff	2nd speed 1/min: 400 Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 11.0015.00 1000s.: (9.0017.00)	+ electromagnet Volt: 12 + Del. quantity cm3/: 18.0048.00 + 1000S.: (18.0048.00)
Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff	4th speed 1/min: 100 Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 0.005.00 1000S:: (0.005.00)	electromagnet Volt: 12  Del. quantity cm3/: 40.0070.00  1000s.: (40.0070.00)
Load-dependent start of delivery: Injqty.dif.measurement:	+ Shutoff electromagnet: + Cut-in
2nd speed 1/min: 1100 Charge press. hPa: 1000 Injqty. cm3/: 21.7023.70*	min voltage : 10.0 Rated voltage : 12.0
difference 1000s.: (21.7023.70) Shutoff	<ul><li>Mounting and assembly dimensions:</li><li>Designation</li></ul>
electromagnet Volt: 12 4th speed 1/min: 1100 Charge press. hPa: 1000 Injqty. cm3/: 25.5033.50#	+ K mm: 3.23.4 + KF mm: K-OT + MS mm: 0.81.2 + SVS max. mm: 3.0
difference 1000S.: (25.5033.50)	+ LDA stroke mm: 6.0

 XK
 mm: 20.0...22.0

 XL
 mm: 13.1...16.5

 Ya
 mm: 36.9...40.9

 Yb
 mm: 42.5...47.9

#### Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No. ..343,..344

Note inst. in remarks column

Test scheet : VMA

Edition : 08.07.92 : 10.07.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/11F1800L363 : 0 460 416 064 Type number

Customer Part-No.:

Customer—specific information

Customer

Engine : HR694HJ/10

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0.2 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1500

Charge press. hPa: 1000 Setting value mm: 3.80...4.20

Supply-pump pressure

1/min: 1500 Speed

F19

hPa: 1000 Charge press

Setting value bar: 6.10...6.70

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 84.50...85.50 Dispersion cm3/: 3.5 1000s.: (3.5)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 49.00...50.00

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 11.00...15.00 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 2000 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 52.00...58.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 55.00...95.00 mind 1000s.: 55.00

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: 20.00...28.00\*

TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel

difference mm: 0.60...0.80\*

SP press.-dif.measurement pompa di mandata (FP) 1/min: 1500 1. Speed

Supply pump pressure

bar: 0.20...0.40# difference

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:  2nd speed	Del. quantity cm3/: 79.0082.00 1000s.: (78.0083.00) 12th speed 1/min: 1500 Charge press. hPa: 1000 Del. quyntity cm3/: 84.5085.50 1000s.: (83.0087.00) 18th speed 1/min: 600 Del. quantity cm3/: 49.0050.00 1000s.: (47.0052.00) 20th speed 1/min: 600 Charge press. hPa: 1000 Del. quantity cm3/: 86.0090.00 1000s.: -
Supply-pump pressure characteristic:	Mech. shutoff: Mech. Abstellung:
1st speed 1/min: 1800 Charge press. hPa: 1000 Supply-pump pressure bar: 7.107.70 2nd speed 1/min: 1500 Charge press. hPa: 1000	1st speed 1/min: 1800 Charge press. hPa: 1000 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)
Supply-pump pressure bar: 6.106.70  3rd speed 1/min: 600 Charge press. hPa: 1000 Supply-pump pressure bar: 3.003.60	1st speed 1/min: 400 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: 12
Overlow quantity at overflow valve:	Idle delivery:
1st speed 1/min: 600 Charge press. hPa: 1000 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1800 Charge press. hPa: 1000 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char::	1st speed 1/min: 400 Del. quantity cm3/: 11.0015.00
1nd speed 1/min: 600 Charge—air pressure—setting point hPa: 400 LDA—stroke mm: 5.2 Del. quantity cm3/: 69.0070.00 1000S.: (67.0072.00) 3rd speed 1/min: 2130 Charge press. hPa: 1000 Del. quantity cm3/: 0.008.00 1000S.: — 5th speed 1/min: 2000 Charge press. hPa: 1000 Del. quantity cm3/: 52.0058.00 1000S.: (51.0059.00) 9th speed 1/min: 1800 Charge press. hPa: 1000	Load-dependent start of delivery: Injqty.dif.measurement:  1st speed 1/min: 1500 Injqty. cm3/ : 17.0019.00# difference 1000S.: (17.0019.00) 3rd speed 1/min: 1500 Injqty. cm3/: 20.0028.00* difference 1000S.: (20.0028.00)  TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 TD-travel : 0.600.80* difference : 0.600.80

SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500

Supply pump-

: 0.20...0.40# pressure difference bar: (0.20...0.40)

# Automatic starting fuel delivery:

1st speed 1/min: 300 Del. quantity cm3/: 57.00...77.00 1000s.: (57.00...77.00)

2nd speed 1/min: 400

Del. quantity cm3/: 45.00...55.00

1000s.: (45.00...55.00)

4th speed 1/min: 100

Del. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00)

### Mounting and assembly dimensions:

#### Designation

mm: -KF mm: 5.6...6.0 MS mm: 0.8...1.2 XK mm: 20.0...22.0 XL nm: 9.7...13.1 mm: 38.6...40.6 Ya Yb mm: 50.4...62.2

#### Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No. . . 303

Pushing electromagnet.

Note inst. in remarks column

Test scheet : FIA : 02.06.92 Edition replaces : 18.01.89 Calibrating oil : ISO-4113

Injection pump : VE4/12F1350R330 Type number : 0 460 424 050

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

Engine : 8040.45.261 LKW,USA

KW: 75 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temo.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 020

Openina |

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

mm: 0.3 Prestroke

(from BDC): +0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1200 Charge press. hPa: 1000

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200 Charge press hPa: 1000

Setting value bar: 6.40...7.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 109.50...110.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500 Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (4.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 35.00...41.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...115.00

1000s.: 75.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

	/min:		+	Shutoff	
Charge press		1900	+	electromagnet Voit:	12
Injaty. c	m3/		+	4th speed 1/min:	1350
	00s.:	10.0018.00*	+	Charge press. hPa:	1000
Shutoff			+	Supply-pump	
electromagnet	Volt:	12	+		7.007.60
TD-travel dif.			+	Shutoff	
correttore ant	icipo	iniezione (SV)	+	electromagnet Volt:	12
	/min:		+		
Charge press	hPa:	1000	+	Overlow quantity at	overflow valve:
TD-travel			+		
difference	mm:	1.401.60*	+	1st speed 1/min:	500
Shutoff			+	Charge press. hPa:	1000
electromagnet '			+	Shutoff	
SP pressdif.			+	electromagnet Volt:	12
pompa di manda			+	Overflow :	41.7083.40
	/min:		+	quantity cm3/10s:	(41.7083.40)
Charge press	hPa:	1000	.}-	2nd speed 1/min:	
Supply pump			+	Charge press. hPa:	1006
pressure			+	Shutoff	
difference	bar:	0.000.401	+	electromagnet Volt:	12
Shutoff			+	Overflow:	55.60139.00
electromagnet '	Volt:	12	+	quantity cm3/10s:	(55.60139.00)
			+	•	
Inspection pum	p tes	t specifications	+	Delivery-quant. and	breakaway char .:
Test specifica	tions	in parentheses	+		•
			+		
Timing-device	chara	cteristic:	+	1nd speed 1/min:	
			+	Charge-air pressure	-setting
	/min:		+	point hPa:	350
Charge press	hPa:		+	LDA-stroke mm:	6.3
TD travel	mm:	3.704.50	+	Shutoff	
	mm:	(3.404.80)	+	electromagnet Volt:	
Shutoff			+	Del. quantity cm3/:	
electromagnet '			+		(83.0090.00)
3rd speed 1.			+	3rd speed 1/min:	
Charge press			+	Charge press. hPa:	1000
TD travel		2.803.20	+	Shutoff	
	mm:	(2.303.70)	+	electromagnet Volt:	12
Shutoff			Ϋ́	Det. quantity cm3/:	0.003.00
electromagnet	Volt:	12	+	1000s.:	(0.003.00)
	/min:		+	5th speed 1/min:	
Charge press		1000	+	Charge press. hPa:	1000
TD travel		1.302.10	+	Shutoff	
ml . cc	mm:	(1.002.40)	+	electromagnet Volt:	12
Shutoff			+	Del. quantity cm3/:	35.0041.00
electromagnet 1	Volt:	12	+	10005.:	(32.0044.00)
<b>.</b>			+	9th speed 1/min:	
Supply-bump pr	essur	e characteristic:	+	Charge press. hPa:	1000
	, .	505	+	Shutoff	
1st speed 1			+	electromagnet Volt:	
Charge press.	hPa:	1000	+	Del. quantity cm3/:	105.50109.50
Supply-pump		7 40 40	+		(104.50110.50)
pressure	bar:	3.604.20	+	12th speed 1/min:	
Shutoff		40	+	Charge press. hPa:	1000
electromagnet '			+	Shutoff	
	/min:		+	electromagnet Volt:	
Charge press.	hPa:	1000	+	Del. quyntity cm3/:	109.50110.50
Supply-pump					
pressure		6.407.00	+	1000s.: 18th speed 1/min:	(107.00113.00)

Supply pumpelectromagnet Volt: 12 : 0.00...0.40 pressure Del. quantity cm3/: 66.50...67.50 difference bar: -1000s.: (64.00...70.00) Shutoff electromagnet Volt: 12 Mech. shutoff: Mech. Abstellung: Automatic starting fuel delivery: 1st speed 1/min: 1350 1/min: 150 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Del. quantity cm3/: 80.00...120.00 Shutoff 1000s.: (80.00...120.00) electromagnet volt: 12 2nd speed 1/min: 250 Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 22.50...37.50 1000s.: (22.50...37.50) 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 4th speed 1/min: 100 Idle delivery: Shutoff electromagnet Volt: 12 1st speed 1/min: 400 Del. quantity cm3/: 75.00...115.00 Shutoff 1000s.: (75.00...115.00) electromagnet Volt: 12 Del. quantity cm3/: 22.00...26.00 Shutoff electromagnet: 1000s.: (19.00...29.00) Dispersion cm3/: 3.5Cut-in 1000s.: (4.0) : 10.0 min voltage 2nd speed 1/min: 450 Rated voltage : 12.0 Shutoff electromagnet Volt: 12 Mounting and assembly dimensions: Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Designation K mm: -Load-dependent start of delivery: KF mm: 5.3...5.7 Inj.-qty.dif.measurement: MS mm: 0.8...1.0 mm: 6.3 LDA stroke 2nd speed 1/min: 1200 mm: 20.0...22.0 XK mm: 15.0...18.4 mm: 37.9...39.9 Charge press. hPa: 1000 XL cm3/: 5.00...7.00' Inj.-qty. Ya difference 1000s.: mm: 45.0...50.2 Yb Shutoff electromagnet Volt: 12
4th speed 1/min: 1200
Charge press. hPa: 1000
Inj. qty. cm3/: 10.00..18.00\* Remarks: difference 1000s.: (10.00...18.00) Shutoff electromagnet Volt: 12 1/min: 1200 2nd speed Charge press. hPa: 1000 TD-travel : 1.40...1.60\* difference mm: (1.40...1.60) Shutoff electromagnet Volt: 12 1/min: 1200 2nd speed Charge press. hPa: 1000

Shutoff

Note inst. in remarks column

Test scheet : CAS

Edition : 08.07.92 replaces : 09.10.91 Calibrating oil : ISO-4113

Injection pump : VE4/12F1100R370 Type number : 0 460 424 056

Customer Part-No. :

Customer-specific information

Customer : CASE

Engine : 4 TA 390

Power KW: 66

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. \*C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm: +-0.02(0.06)

Outlet : A

Injection—pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 750

Setting value mm: 3.20...3.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 4.30...4.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750

Del. quantity cm3/

1000s.: 86.50...87.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1003S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 10.00...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1155

Del. quantity cm3/

1000s.: 50.00...58.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...125.00

mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 4.80...5.60

mm: (4.50...5.90)

Shutoff	+ Del. quantity cm3/: 50.0058.00
electromagnet Volt: 12	10005.: (46.0062.00)
3rd speed 1/min: 750	+ 9th speed 1/min: 1100
TD travel mm: 3.203.60	+ Shutoff
mm: (2.704.10)	+ electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 69.5072.50
electromagnet Volt: 12	10608.: (68.0074.00)
4th speed	10th speed 1/min: 900
TD travel mm: 1.602.40 mm: (1.302.70)	<pre>- Shutoff - electromagnet Volt: 12</pre>
Shutoff	Del. quantity cm3/: 76.5079.50
electromagnet Volt: 12	10008.: (74.5081.50)
01000. 0.11119, 150 0000. 12	+ 12th speed 1/min: 750
Supply-pump pressure characteristic:	+ Shutoff
	+ electromagnet Volt: 12
1st speed 1/min: 500	+ Del. quyntity cm3/: 86.5087.50
Supply-pump	+ 1000s.: (84.0090.00)
pressure bar: 3.203.80	- 20th speed 1/min: 500
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 750	+ Del. quantity cm3/: 86.5094.50
Supply-pump pressure bar: 4.304,90	10008.: (84.5096.50)
Shutoff	- Mech. shutoff:
electromagnet Volt: 12	T rectr. statorr.
3rd speed 1/min: 1100	Electr. shutoff:
Supply-pump	+
pressure bar: 5.806.40	+ 1st speed 1/min: 450
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	
etectionagnet vott: 12	† 1000S.: (0.003.00)
•	+
Overlow quantity at overflow valve:	Idle delivery:
Overlow quantity at overflow valve:	Idle delivery:
Overlow quantity at overflow valve:  1st speed 1/min: 500	Idle delivery:  1st speed 1/min: 450
Overlow quantity at overflow valve:  1st speed  1/min: 500 Shutoff	Idle delivery:  1st speed 1/min: 450 Shutoff
Overlow quantity at overflow valve:  1st speed  1/min: 500 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed  1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00
Overlow quantity at overflow valve:  1st speed  1/min: 500 Shutoff electromagnet Volt: 12 Overflow     : 41.7083.40 quantity cm3/10s: (41.7083.40)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00)
Overlow quantity at overflow valve:  1st speed  1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00) Automatic starting fuel delivery:
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery—quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery—quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)  Delivery—quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000s.: (85.00135.00)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)  Delivery—quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00,60.00	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000s.: (8.0018.00) Dispersion cm3/: 5.5 1000s.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000s.: (0.004.00)  Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000s.: (85.00135.00)
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000S.: (10.0060.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000S.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000S.: (85.00135.00)  2nd speed 1/min: 450 Shutoff electromagnet Volt: 12
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000S.: (10.0060.00) 5th speed 1/min: 1155	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000S.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000S.: (85.00135.00)  2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00100.00
Overlow quantity at overflow valve:  1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (41.7083.40) 2nd speed 1/min: 1100 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00) Delivery-quant. and breakaway char.:  2nd speed 1/min: 1215 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1170 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0060.00 1000S.: (10.0060.00)	Idle delivery:  1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0016.00 1000S.: (8.0018.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.004.00 1000S.: (0.004.00)  Automatic starting fuel delivery:  1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00135.00 1000S.: (85.00135.00)  2nd speed 1/min: 450 Shutoff electromagnet Volt: 12

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 0.8...1.2 SVS max. mm: 1.1

mm: 18.8...20.8 mm: 11.0...14.4 mm: 34.8...38.8 XK XL Ya Yb mm: 41.2...46.8

Remarks:

: C.D.C. # 391 7934

Overflow restriction 0.55 mm - Part No. ..303

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : CUM : 07.07.92 Edition replaces : 19.06.90 Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R374 : 0 460 424 057 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 4 BTA 3.9 IND

KW: 88 Power 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.55

mm:  $\leftarrow 0.02(0.06)$ 

Outlet : A

Injection-pump setting values Test specifications in parentheses Timing-device travel

1/min: 850 Speed Charge press. hPa: 1000

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850 Charge press hPa: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 85.50...86.50

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 365

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1310 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 61.00...67.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...140.00

1000s.: 70.00 mind

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: 55.60...139.00 Overflow electromagnet volt: 12 quantity cm3/10s: (55.60...139.00) Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1/min: 700 1nd speed Charge-air pressure-setting point hPa: 350 2nd speed 1/min: 1100 Charge press hPa: 1000 LDA-stroke mm: 6.6 mm: 4.90...5.70 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 79.50...80.50 1000\$:: (76.00...84.00) mm: (4.60...6.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 850 1/min: 1420 2nd speed Charge press hPa: 1000 Charge press. hPa: 1000 TD travel mm: 4.00...4.40 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) mm: (3.50...4.90) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 Charge press hPa: 1000 1/min: 1350 4th speed Charge press. hPa: 1000 TD travel mm: 1.80...2.60 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 15.00...55.00
1000\$.. (15.00...55.00) mm: (1.50...2.90) Shutoff electromagnet Volt: 12 1/min: 1310 5th speed Charge press. hPa: 1000 Shutoff Supply pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 61.00...67.00 1000s.: (58.00...70.00) 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump bar: 4.00...4.60 pressure 1/min: 1250 9th speed Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 1/min: 850 2nd speed electromagnet Volt: 12 Del. quantity cm3/: 74.50...77.50 1000s.: (73.00...79.00) 10th speed 1/min: 1100 Charge press. hPa: 1000 Supply-pump pressure bar: 5.60...6.20 Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 77.00...80.00 1000s.: (75.00...82.00) Supply-pump bar: 6.70...7.30 pressure 1/min: 850 12th speed Shutoff Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 500 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 41.70...83.40 Overflow Del. quantity cm3/: 63.50...64.50 cm3/10s: (41.70...83.40) quantity 1000s.: (60.00...68.00) 2nd speed 1/min: 1250 1/min: 500 20th speed Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 electromagnet Voit: 12

Shutoff

Del. quantity cm3/: 89.00...99.00 1000s.: -

Mech. shutoff: Mech. Abstellung:

1/min: 1400 1st speed

Charge press. hPa: 1000
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 365

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 365

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 8.00...14.00

1000s.: (6.00...16.00)

cm3/: 5.5Dispersion 1000s.: (7.0)

2nd speed 1/min: 450

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...140.00 1000s.: (70.00...140.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...60.00

1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...140.00

1000s.: (70.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:

Designation

K mm: -KF mm: 5.0...5.4 mm: 1.0...1.4 MS

SVS max. mm: 2.4 LDA stroke mm: 6.6

mm: 21.8...23.8 XK XL mm: 13.2...16.7 mm: 35.8...37.8 Ya Yb mm: 43.3...48.7

Remarks:

Operate control lever after each 6925 manifold-pressure compensator pressure

\* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : 01.07.92 Edition Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R329-1 Type number : 0 460 426 120

Customer-specific information Customer : IVECO-FIAT

Engine : 8060.25.241

KW: 100 Power

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

. 1 683 901 020 assembly

Openina |

Pressure bar: 172...175

Test inj. tubing : 7 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed Charge press. hPa: 1000

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200 Charge press hPa: 1000 Setting value bar: 7.70...8.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 96.00...97.00

Shutoff

electromagnet Volt: 12 cm3/: 5.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: 4.0

Full-load speed regulation

1/min: 1500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...115.00 mind 1000s.: 75.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200 Charge press hPa: 1000

cm3/ Inj.-qty.

difference 1000s.: 12.00...20.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1200 1.Speed Charge press hPa: 1000

TD-travel Supply-pump difference mm: 1.40...1.60\* pressure bar: 8.30...8.90 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 SP press. dif.measurement pompa di mandata (FP) Overlow quantity at overflow valve: 1.Speed 1/min: 1200 Charge press Supply pump hPa: 1000 1st speed 1/min: 500 Charge press. hPa: 1000 Shutoff pressure difference bar: 0.00...0.40# electromagnet Volt: 12 : 41.70...83.30 Shutoff Overflow electromagnet Volt: 12 cm3/10s: (41.70...83.30) quantity 2nd speed 1/min: 1350 Charge press. hPa: 1000 Inspection pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 Timing device characteristic: Overflow : 55.60...139.00 cm3/10s: (55.60...139.00) quantity 1/min: 1350 1st speed Charge press hPa: 1000 Delivery-quant. and breakaway char.: TD travel mm: 3.60...4.40 mm: (3.30...4.70) electromagnet Volt: 12 2nd speed 1/min: 1200 Charge press hPa: 1000 1nd speed 1/min: 500 Charge-air pressure-setting hPa: 500 point TD travel mm: 3.00...3.40 LDA-stroke mm: 3.0 mm: (2.50...3.90) Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 81.00...82.00 1000S.: (78.50...84.50) 2nd speed 1/min: 1600 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 3rd speed 1/min: 900 hPa: 1000 Charge press mm: 0.70...1.50 TD travel mm: (0.40...1.80) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 Supply-pump pressure characteristic: 3rd speed 1/min: 1500 Charge press. hPa: 1000 1st speed 1/min: 500 Shutoff electromagnet Volt: 12
Dal. quantity cm3/: 37.00...43.00
1000s.: (34.00...46.00)
4th speed 1/min: 1350 Charge press. hPa: 1000 Supply-pump pressure bar: 5.00...5.60 Shutoff electromagnet Volt: 12 2nd speed 1/min: 900 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 92.50...95.50 1000s.: (91.00...97.00) Charge press. hPa: 1000 Supply-pump pressure bar: 6.60...7.20 Shutoff 1/min: 1200 5th speed electromagnet Volt: 12 3rd speed 1/min: 1200 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 96.00...97.00 1000s.: (93.50...99.50) Charge press. hPa: 1000 Supply-pump pressure bar: 7.70...8.30 Shutoff 6th speed 1/min: 800 electromagnet Volt: 12 4th speed 1/min: 1350 Charge press. hPa: 1000 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12

Del. quantity cm3/: 90.50...93.50 1000s.: (89.00...95.00) TD-travel : 1.40...1.60# difference mm: (1.40...1.60) 1/min: 500 7th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 66.50...67.50 SP press.—dif.measurement: 1000s.: (64.00...70.00) pompa di mandata (FP): 1st speed 1/min: 1200 Charge press. hPa: 1000 Mech. shutoff: Mech. Abstellung: Supply pumppressure : 0.00...0.40# 1st speed 1/min: 1350 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 difference bar: (0.00...0.40) Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Shutoff Automatic starting fuel delivery: electromagnet volt: 12 1st speed 1/min: 150 Electr. shutoff: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00...125.00 1000s.: (85.00...120.00) 1/min: 400 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed 1/min: 250 Idle delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 36.00...60.00 1000s.: (36.00...60.00) 1/min: 350 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Dispersion cm3/: 3.5 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...115.00 1000s.: (75.00...115.00) 1000s.: (4.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Shutoff electromagnet: Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Cut-in min voltage : 10.0 Load-dependent start of delivery: Rated voltage : 12.0 Inj.-qty.dif.measurement: Mounting and assembly dimensions: 1st speed 1/min: 1200 Charge press. hPa: 1000 Inj.-qty. cm3/ : 12.00..20.00\* difference 1000s.: (12.00...20.00) mm: 5.0...5.4 LDA stroke mm: 3.0 mm: 37.9...39.9 mm: 43.5...49.1 Shutoff electromagnet Volt: 12 1/min: 1200 2nd speed Remarks: Charge press. hPa: 1000 cm3/: 5.00...7.00 Inj.-qty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1200 1st speed Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CUM

Edition : 06.07.92 : 17.05.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R351 Type number : 0 460 426 130

Customer Part-No. :

Customer-specific information

Customer

: CDC

Engine

: 6 BTA-590 A

Power KW: 135 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly

: 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated plate

diameter

mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery block mm: 1.15 Piston stroke

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed

1/min: 850

Charge press. hPa: 1400 Setting value mm: 2.20...2.60

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850

Charge press hPa: 1400 Setting value bar: 6.10...6.70

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1400

Del. quantity cm3/

1000s.: 79.00...80.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 58.50...59.50

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KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 375

Del. quantity cm3/

1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1370 Charge press hPa: 1400

Del. quantity cm3/ 1000s.: 61.00...67.00

KSB/AFB

valve Volt: 12

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Shutoff	+	2nd speed 1/min:	850
electromagnet Volt: 12	1		1400
sassin simagines total.	1	Supply-pump	1400
Start:	$\mathbf{I}$		6.105.70
Jean C.	T	pressure bar: KSB/AFB	0.105.70
Speed 1/min: 100	n T		40
		valve Volt:	12
Del. quantity cm3/: 70.	.00150.00	Shutoff	4.0
mind 1000s.: 70.	.00 +	electromagnet Volt:	12
KSB/AFE	†	3rd speed 1/min:	
Valve Volt: 12	+		1400
Shutoff	+	Supply-pump	
electromagnet Volt: 12	+	pressure bar:	7.708.30
	+	KSB/AFB	
Inspection—pump test sp	pecifications +	valve Volt:	12
Test specifications in		Shutoff	
	1	electromagnet Volt:	12
Timing-device character	ristic:	order smagnet sore.	12
Time in the contract duties	1	Overlow quantity at	overflow valve.
2nd speed 1/min: 100	nn I	over tow qualitity at	over flow valve.
Charge press hPa: 140		1st speed 1/min:	500
TD travel mm: 2.8			500
		KSB/AFB	40
	.503.90)	valve Volt:	12
KSB/AFB	†	Shutoff	
valve Volt: 12	+	electromagnet Volt:	12
Shutoff	+		41.7083.40
electromagnet Volt: 12		quantity cm3/10s:	
3rd speed 1/min: 850		2nd speed 1/min:	1250
Charge press hPa: 140		Charge press. hPa:	1400
TD travel mm: 2.2	202.60	KSB/AFB	
	.703.10)	valve Volt:	12
KSB/AFB	<u> </u>	Shutoff	, •
valve Volt: 12	1	electromagnet Volt:	12
Shutoff	1		55.60139.00
electromagnet Volt: 12	1	quantity cm3/10s:	
4th speed 1/min: 700		quarterty cmp/103.	()).00()/.00/
Charge press hPa: 140		Delivery-quant. and	headkouny chan
TD travel mm: 0.8		becavery quant. and	Dieakaway Char.
	.501.90)		
KSB/AFB	.301.907	1-d 1 /	700
	<b>T</b>	1nd speed 1/min:	
	†	Charge-air pressure	
Shutoff	†	point hPa:	
electromagnet Volt: 12			6.6
8th speed 1/min: 400		KSB/AFB	
	004.00	valve Volt:	12
	.004.00)	Shutoff	
KSB/AFB	+	electromagnet Volt:	12
valve Volt: 12	+	Del. quantity cm3/:	76.0077.00
Shutoff	1	1000s.:	(72.0081.00)
electromagnet Volt: 12	+	2nd speed 1/min:	1500
3	1	Charge press. hPa:	
Supply-pump pressure ch	haracteristic 1	KSB/AFB	1405
catelogy bands by cooding th		valve Volt:	10
1st speed 1/min: 500	n 1	Shutoff	12
Charge press. hPa: 140			10
	<b></b> 7	electromagnet Volt:	
Supply-pump	EO 5 10 T	Del. quantity cm3/:	
	505.10		(0.003.00)
KSB/AFB	+	3rd speed 1/min:	
valve Volt: 12	+	Charge press. hPa:	1400
Shutoff	+	KSB/AFB	
electromagnet Volt: 12	+	valve Volt:	12

Shutoff	Mech. shutoff:
electromagnet Volt: 12	Mech. Abstellung:
Del. quantity cm3/: 0.0015.00	
1000s.: (0.0015.00)	1st speed 1/min: 1250
4th speed 1/min: 1420	Charge press. hPa: 1400
Charge press. hPa: 1400	Del. quantity cm3/: 0.003.00
KSB/AFB	1000s.: (0.003.00)
valve Volt: 12	Shutoff
Shutoff	electromagnet volt: 12
electromagnet Volt: 12	KSB/AFB
Del. quantity cm3/: 15.0055.00	
4000c . (45.00 55.00)	valve Volt: 12
1000s.: (15.0055.00)	
5th speed 1/min: 1370 +	Electr. shutoff:
Charge press. hPa: 1400 +	
KSB/AFB	1st speed
valve Volt: 12	Del. quantity cm3/: 0.003.00
Shutoff	1000c . (0.00 7.00)
	1000s.: (0.003.00)
electromagnet Volt: 12	KSB/AFB
Del. quantity cm3/: 61.0067.00	valve Volt: 12
1000s.: (58.0070.00)	
10th speed 1/min: 1100 +	Idle delivery:
Charge press. hPa: 1400	2200 200110171
KSB/AFB	1st speed 1/min. 775
	1st speed 1/min: 375
valve Volt: 12	KSB/AFB
Shutoff +	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 77.0083.00	electromagnet Volt: 12
1000s.: (75.5084.50)	
11th speed 1/min: 850	Del. quantity cm3/: 4.006.00
	10005.: (0.0010.00)
Charge press. hPa: 1400	Dispersion cm3/: 5.5
KSB/AFB +	1000s.: (7.0)
valve Volt: 12	2nd speed 1/min: 400
Shutoff	KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm3/: 79.5086.50 +	Shutoff
1000s.: (78.0088.00)	electromagnet Volt: 12
12th speed 1/min: 1250	Del. quantity cm3/: 0.004.00
Charge press. hPa: 1400 +	1000s.: (0.004.00)
KSB/AFB 1	3rd speed 1/min: 325
valve Volt: 12	KSB/AFB
Shutoff	valve Volt: 12
electromagnet Volt: 12	Shutoff
Del. quyntity cm3/: 79.0080.00 +	electromagnet Volt: 12
1000s.: (76.5082.50)	Del. quantity cm3/: 12.5020.50
18th speed 1/min: 500 +	1000s.: -
KSB/AFB	10000
· ·	Andreas Administration of Principal Company
	Automatic starting fuel delivery:
Shutoff	
electromagnet Volt: 12	1st speed 1/min: 150
Del. quantity cm3/: 58.5059.50	KSB/AFB
1000s.: (54.5063.50)	valve Volt: 12
20th speed 1/min: 500	
	Shutoff
Charge press. hPa: 1400	electromagnet Volt: 12
KSB/AFB +	Del. quantity cm3/: 80.00160.00
valve Volt: 12	1000s.: (80.00160.00)
Shutoff 4	
electromagnet Volt: 12	2nd speed 1/min: 240
Del. quantity cm3/: 91.50105.50	KSB/AFB
1000s.: -	valve Volt: 12
+	

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00

1000s.: (20.00...60.00)

1/min: 100 4th speed

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...150.00 1000s.: (70.00...150.00)

#### Shutoff electromagnet:

Cut-in

min voltage : 12.0 Rated voltage : 10.0

### Mounting and assembly dimensions:

Designation

mm: 3.6...3.8

KF mm: -

MS mm: 0.3...1.2

SVS max. mm: 4.4 LDA stroke mm: 6.6

mm: 34.8...38.8 Ya

mm: 44.0...49.2 Yb

Remarks:

: C.D.C. # 391 4928

Operate control lever after each manifold-pressure compensator pressure change.

- \* Correction at adjusting nut (46)
- \* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : CUM Edition : 06.07.92 replaces : 12.07.89 Calibrating cil : ISO-4113

Injection pump : VE6/12F1400R367 Type number : 0 460 426 137

Customer Part-No. :

Customer—specific information Customer

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp. with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Openina |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 850 Speed

Setting value mm: 3.80...4.20

Shutoff.

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 850

Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 56.50...57.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1450

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 50.00...110.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 5.40...6.20 TD travel mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 850

G10

TD travel mm: 3.80...4.20 Shutoff mm: (3.30...4.70) Shutoff electromagnet Volt: 12 1/min: 500 4th speed mm: 0.70...1.50 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 52.50...56.50 1000s.: (50.50...58.50) mm: (0.40...1.80) Shutoff electromagnet Volt: 12 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 12th speed 1/min: 1100 1/min: 500 1st speed Shutoff Supply pump electromagnet Volt: 12 Del. quyntity cm3/: 56.50...57.50 1000s.: (54.00...60.00) 20th speed 1/min: 500 bar: 2.50...3.10 pressure Shutoff electromagnet Volt: 12 1/min: 850 2nd speed Shutoff Supply-pump electromagnet Volt: 12 Del. quantity cm3/: 42.00...50.00 1000s.: (40.00...52.00) pressure bar: 3.90...4.50 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Mech. shutoff: Supply-pump Mech. Abstellung: pressure bar: 4.90...5.50 Shutoff 1st speed 1/min: 1400 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: 12 1st speed 1/min: 500 Shutoff Electr. shutoff: electromagnet Volt: 12 : 41.70...83.40 1st speed 1/min: 375 cm3/10s: (41.70...83.40) quantity Del. quantity cm3/: 0.00...3.00 2nd speed 1/min: 1400 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 Idle delivery: : 55.60...139.00 Overflow quantity cm3/10s: (55.60...139.00) 1/min: 375 1st speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm3/: 5.5 Delivery-quant. and breakaway char.: 2nd speed 1/min: 1580 Shutoff 1000s.: (7.0) electromagnet Volt: 12 2nd speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Del. quantity\_cm3/: 0.00...6.00 1/min: 1490 3rd speed Shutoff 1000s.: (0.00...6.00) electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 5th speed 1/min: 1450 Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.00...46.00) electromagnet Volt: 12 Del. quantity cm3/: 55.00...115.00 1000s.: (55.00...115.00) 1/min: 1400 9th speed

1/min: 400 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 25.00...65.00 1000s.: (25.00...65.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...110.00 1000s.: (50.00...110.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

### Mounting and assembly dimensions:

Designation

K mn: -

KF mm: 5.0...5.4 MS mm: 1.3...1.7 XK mm: 18.8...20.8 mm: 9.6...13.0 XL mm: 34.8...38.8 mm: 39.3...44.7 Ya Yb

Remarks:

: C.D.C. # 391 7542

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : CLM Edition : 08.07.92 : 23.10.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369 Type number : 0 460 426 138

Customer Part-No. :

Customer-specific information Customer : CASE

: 6BT- 5.9 IND. Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet. : D

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 750

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.30...3,90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850

Del. quantity cm3/ 1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

1/min: 1040 Speed

Del. quantity cm3/

1000s.: 53.00...59.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing device characteristic:

2nd speed 1/min: 1000

TD travel mm: 4.60...5.40

mm: (4.30...5.70)

Shutoff

electromagnet Volt: 24 1/min: 750 3rd speed

TD travel mm: 3.00...3.40 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 63.50...66.50
1000s.: (62.00...68.00)
10th speed 1/min: 750 mm: (2.50...3.90) Shutoff electromagnet Volt: 24 4th speed 1/min: 500 mm: 1.20...2.00 TD travel Shutoff mm: (0.90...2.30) electromagnet Volt: 24 Del. quantity cm3/: 64.00...67.00 1000s.: (62.00...69.00) 12th speed 1/min: 850 Shutoff electromagnet Volt: 24 12th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 66.50...67.50
1000S.: (64.00...70.00) 1/min: 500 1st speed Supply-pump pressure bar: 2.30...2.90 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 40.50...48.50 1000s.: (38.50...50.50) electromagnet Volt: 24 2nd speed 1/min: 750 Supply-pump bar: 5.30...3.90 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1000 3rd speed Supply-pump 1st speed 1/min: 1000 bar: 4.50...5.10 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) pressure Shutoff electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 500 1st speed Shutoff 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 24 : 41.70...83.40 Overflow cm3/10s: (41.70...83.40) 1/min: 1000 quantity 2nd speed Idle dalivery: Shutoff electromagnet Volt: 24 1/min: 450 1st speed : 55.60...139.00 Overflow Shutoff quantity cm3/10s: (55.60...139.00) electromagnet Volt: 24 Del. quantity cm3/: 6.00...12.00 Delivery-quant. and breakaway char.: 1000s.: (4.00...14.00) cm3/: 5.5 1000s.: (7.0) 1/min: 500 Dispersion 2nd speed 1/min: 1120 2nd speed Shutoff Shutoff electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
1000S:: (0.00...3.00) electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) 3rd speed 1/min: 1060 Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) Shutoff 1/min: 240 2nd speed

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.00...35.00 1000s.: (5.00...35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

# Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

# Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 mm: 0.8...1.2 KF MS

SVS max. mm: 1.2

mm: 18.8...20.8 XΚ

mm: 9.9...13.3 XL mm: 34.8...38.8 Ya

mm: 38.3...43.7 Yb

Remarks:

: C.D.C. # 391 7563

Overflow restriction 0.55 mm - Part No.

..303

Note inst. in remarks column

Test scheet : CAS
Edition : 08.07.92
replaces : 07.11.89
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371 Type number : 0 460 426 140

Customer Part-No. :

Customer-specific information Customer : CASE

customer : CASE

Engine : 6 T 590

Power KW: 79

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 750

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750

Del. quantity cm3/

1000s.: 61.50...62.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1160

Del. quantity cm3/

1000s.: 41.00...47.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 45.00...95.00

mind 1000s.: 45.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 5.00...5.80

mm: (4.70...6.10)

Shutoff	Del. quantity cm3/: 41.0047.00
electromagnet Volt: 12	1000s.: (38.0050.00)
3rd speed 1/min: 750 +	9th speed 1/min: 1100
TD travel mm: 2.603.00	Shutoff
mm: (2.103.50)	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 58.5061.50 1000s.: (57.0063.00)
4th speed 1/min: 500	12th speed 1/min: 750
TD travel mm: 0.601.40	Shutoff
mm: (0.30,1.70)	electromagnet Volt: 12
Shutoff	Del. quyntity cm3/: 61.5062.50
electromagnet Volt: 12	1000s.: (59.0065.08)
1	20th speed 1/min: 500
Supply-pump pressure characteristic:	Shutoff
†	electromagnet Volt: 12
1st speed 1/min: 500	Del. quantity cm3/: 53.5060.50
Supply-pump +	1000s.: (52.0062.00)
pressure bar: 3.804.40	
Shutofi +	Mech. shutoff:
electromagnet Volt: 12 + 2nd speed 1/min: 750 +	
Supply-pump +	Electr. shutoff:
pressure bar: 4.905.50	1st speed 1/min: 450
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10005:: (0.003.00)
3rd speed 1/min: 1100	1000011 (0.00111.5.007)
Supply-pump +	Idle delivery:
pressure bar: 6.407.00	
Shutoff	1st speed 1/min: 450
electromagnet Volt: 12	Shutoff
+	electromagnet Volt: 12
Overlow quantity at overflow valve:	Del. quantity cm3/: 9.0013.00
1-1	10005.: (6.0016.00)
1st speed 1/min: 500	Dispersion cm3/: 5.5
Shutoff electromagnet Volt: 12	1000s.: (7.0)
Overflow : 41.7083.40	2nd speed 1/min: 500 Shutoff
quantity cm3/10s: (41.7083.40)	electromagnet Volt: 12
2nd speed 1/min: 1100	Del. quantity cm3/: 0.004.00
Shutoff	10005: (0.004.00)
electromagnet Volt: 12	(000,011 (0100,11,-1100)
Overflow : 55.60139.00	Automatic starting fuel delivery:
quantity cm3/10s: (55.60139.00)	<b>3</b> , , ,
· · · · · · · · · · · · · · · · · · ·	1st speed 1/min: 220
Delivery-quant. and breakaway char.:	Shutoff
+	electromagnet Volt: 12
2nd annual 1/min 1270	Del. quantity cm3/: 45.0095.00
2nd speed 1/min: 1230	1000s.: (45.0095.00)
Shutoff + electromagnet Volt: 12 +	2nd annual 1/min. /20
Del. quantity cm3/: 0.003.00	2nd speed 1/min: 420 Shutoff
1000s.: (0.003.00)	electromagnet Volt: 12
3rd speed 1/min: 1180	Del. quantity cm3/: 40.0070.00
Shutoff	10008:: (40.0070.00)
electromagnet Volt: 12	
Del. quantity cm3/: 15.0045.00	4th speed 1/min: 100
1000s.: (15,0045.00)	Shutoff
5th speed 1/min: 1160 +	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 45.0095.00
electromagnet Volt: 12	1000s.: (45.0095.00)

## Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

# Mounting and assembly dimensions:

## Designation

K KF mm: mm: 5.0...5.4 mm: 0.8...1.2 MS SVS max. mm: 4.5 mm: 18.8...20.8 mm: 11.3...14.7 mm: 34.8...38.8 mm: 40.2...45.8 XK XL Ya

Remarks:

: C.D.C. # 391 7935

Overflow restriction 0.55 mm - Part No.

..303

Yb

Note inst. in remarks column

Test scheet : CUM

Edition : 06.07.92 : 12.07.89 replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R372 : 0 460 426 141 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6BT-5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1.3

mm: +-0.02(0.06)

Outlet | : D

Injection pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 750

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750 Speed

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1100

Del. quantity cm3/

1000s.: 72.00...73.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

1000s.: (4.5)

Low-idle speed regulation

1/min: 360 Speed

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1300

Del. quantity cm3/

1000s.: 51.00...57.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 60.00...120.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

mm: 5.20...6.00 TD travel

mm: (4.90...6.30)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 750

TD travel mm: 3.40...3.80 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) mm: (2.90...4.30) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 9th speed 1/min: 1250 TD travel mm: 1.30...2.10 Shutoff mm: (1.00...2.40) electromagnet Volt: 12 Del. quantity cm3/: 68.50...71.50 1000S.: (67.00...73.00) 10th speed 1/min: 900 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1/min: 500 1st speed Supply-pump pressure bar: 2.40...3.00 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 75.00...79.00 1000s.: electromagnet Volt: 12 2nd speed 1/min: 750 Supply-pump bar: 3.50...4.10 pressure 12th speed 1/min: 1100 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 73.00...74.00 1000s.: (70.50...76.50) electromagnet Volt: 12 3rd speed 1/min: 1100 Supply-pump pressure bar: 4,80...5.40 1/min: 500 20th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 64.00...72.00 1000s.: (62.00...74.00) Overlow quantity at overflow valve: 1/min: 500 1st speed Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 : 41.70...83.40 Overflow 1st speed 1/min: 1250 Del. quantity cm3/: 0.00...3.00 cm3/10s: (41.70...83.40) quantity 2nd speed 1/min: 1250 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 55.60...139.00 Overflow cm3/10s: (55.60...139.00) quantity Electr. shutoff: Delivery-quant. and breakaway char.: 1000s.: (0.00...3.00) 1/min: 1390 2nd speed Shutoff Idle delivery: 1/min: 360 1st speed Shutoff electromagnet Volt: 12 Shutoff Del. quantity cm3/: 8.00...14.00 electromagnet Volt: 12 1000s.: (6.00...16.00) Del. quantity cm3/: 0.00...3.00 cm3/: 5.5 1000s.: (7.0) Dispersion 1000s.: (0.00...3.00) 1/min: 1300 5th speed 1/min: 450 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00)

## Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

2nd speed 1/min: 240

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12
Del. quantity cm3/: 60.00...120.00
1000s.: (60.00...120.00)

#### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

## Mounting and assembly dimensions:

## Designation

K mm: -

KF mm: 5.0...5.4 MS mm: 0.6...1.0 XK mm: 18.8...20.8 XL mm: 11.1...14.5

Ya mm: 34.8...38.8 Yb mm: 41.0...46.6

#### Remarks:

: C.D.C. # 391 6947

Note inst. in remarks column

Test scheet : CUM : 06.07.92 Edition replaces : 23.10.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-3 : 0 460 426 149 Type number

Customer Part-No. :

Customer-specific information

Customer : CDC

Engine : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.85

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Supply-pump pressure

1/min: 750 Speed Charge press hPa: 1000

Setting value bar: 3.20...3.80

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 82.00...83.00

cm3/: 4.0 Dispersion 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500 Speed Del. quantity cm3/

1000s.: 40.00...41.00

Low-idle speed regulation

Sceed 1/min: 375

Del. quantity cm3/

1000s.: 4.00...8.00

Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:

2nd speed Charge press

1/min: 1050 hPa: 1000 mm: 2.30...3.10 TD travel mm: (2.00...3.40) 1/min: 750

3rd speed Charge press hPa: 1000

mm: 1.40...1.80 TD travel

mm: (0.90...2.30)

4th speed 1/min: 600 Del. quyntity cm3/: 82.00...83.00 1000S.: (79.50...85.50) Charge press hPa: 1000 18th speed 1/min: 500 Del. quantity cm3/: 40.00...41.00 1000s.: (36.00...45.00) TD travel mm: 0.40...1.20 mm: (0.10...1.50) 1/min: 500 Supply-pump pressure characteristic: 20th speed Charge press. hPa: 1000 1/min: 500 1st speed Del. quantity cm3/: 82.00...90.00 Charge press. hPa: 1000 1000s.: -Supply-pump bar: 2.10...2.70 1/min: 750 pressure Mech. shutoff: 2nd speed Mech. Abstellung: Charge press. hPa: 1000 Supply-pump 1/min: 1250 1st speed pressure bar: 3.20...3.80 3rd speed 1/min: 1050 Charge press. hPa: 1000 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Supply-pump pressure bar: 4.30...4.90 Idle delivery: Overlow quantity at overflow valve: 1/min: 375 1st speed Del. quantity cm3/: 4.00...8.00 1/min: 500 1st speed 1000s.: (1.00...11.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 500 Del. quantity cm3/: 0.00...4.00 1000S.: (0.00...4.00) Overflow : 41.70...83.40 cm3/10s: (41.70...83.40) quantity 2nd speed 1/min: 1250 Charge press. hPa: 1000 : 55.60...139.00 cm3/10s: (55.60...139.00) Overflow quantity Automatic starting fuel delivery: Delivery quant. and breakaway char.: 1st speed 1/min: 240 Del. quantity cm3/: 60.00...110.00 1nd speed 1/min: 700 1000s.: (60.00...110.00) Charge-air pressure-setting hPa: 450 point 2nd speed 1/min: 420 Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00) Del. quantity cm3/: 67.00...68.00 Del. quantity cm3/: 67.00...68.00 1000S.: (63.00...72.00) 2nd speed 1/min: 1400 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 1330 Charge press. hPa: 1000 Del. quantity cm3/: 15.00...55.00 1000S.: (15.00...55.00) 5th speed 1/min: 1300 4th speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 1000s.: (70.00...120.00) Mounting and assembly dimensions: Designation 1/min: 1300 5th speed K mm: mm: 5.0...5.4 mm: 1.2...1.6 mm: 2.2 Charge press. hPa: 1000 KF Del. quantity cm3/: 65.00...71.00 MS 1000s.: (62.00...74.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/: 73.50...76.50
1000s.: (72.00...78.00)
10th speed 1/min: 1050 SVS max. mm: 34.8...38.8 Ya mm: 42.7...48.1 Yb Remarks: : C.D.C. # 391 7038 Charge press. hPa: 1000 Del. quantity cm3/: 78.00...81.00 1000s.: (76.50...82.50)

12th speed

1/min: 750

Charge press. hPa: 1000

Note inst. in remarks column

Test scheet : CUM

Edition : 06.07.92 replaces : 23.10.89 Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R373-4 Type number : 0 460 426 150

Customer Part-No. :

Customer-specific information

Customer

: 6 BTA-590 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Open ina

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

 $(from BDC): \leftarrow 0.02(0.04)$ 

Start of delivery block Piston stroke mm: 1.85

mm: +-0.02(0.06)

Outlet. : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750 Charge press hPa: 1000

Setting value bar: 3.20...3.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 750 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 82.00...83.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 40.00...41.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 375

Del. quantity cm3/ 1000s.: 4.00...8.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1300 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 65.00...71.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...120.00 mind 1000s.: 70.00

Shutoff

electromagnet Volt: 24

Delivery-quant. and breakaway char .: Inspection-pump test specifications Test specifications in parentheses 1/min: 700 1nd speed Timing-device characteristic: Charge-air pressure-setting hPa: 450 1/min: 1050 2nd speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 67.00...68.00
10005.: (63.00...72.00) nPa: 1000 Charge press mm: 2.30...3.10 mm: (2.00...3.40) TD travel Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 3rd speed 1/min: 750 hPa: 1000 mm: 1.40...1.80 mm: (0.90...2.30) Charge press TD travel Shutoff electromagnet Volt: 24 4th speed 1/min: 600 Charge press hPa: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 15.00...55.00 1000S.: (15.00...55.00) TD travel mm: 0.40...1.20 mm: (0.10...1.50) n speed 1/min: 1300 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: 1st speed 1/min: 500 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 bar: 2.10...2.70 pressure Shutoff electromagnet Volt: 24
Del. quantity cm3/: 73.50...76.50
1000S.: (72.00...78.00) Shutoff electromagnet Volt: 24 1/min: 750 2nd speed Charge press. hPa: 1000 Shutoff Charge press. hPa: 1000 Supply-pump bar: 3.20...3.80 pressure Shutoff electromagnet Volt: 24 3rd speed 1/min: 1050 Charge press. hPa: 1000 Supply-pump Charge press. hPa: 1000 Shutoff bar: 4.30...4.90 pressure Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 82.00...83.00 1000s.: (79.50...85.50) electromagnet Volt: 24 Overlow quantity at overflow valve: 1/min: 500 18th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 40.00...41.00 1000S.: (36.00...45.00) 1/min: 500 1st speed Shutoff electromagnet Volt: 24 : 41.70...83.40 Overflow 1/min: 500 20th speed cm3/10s: (41.70...83.40) 1/min: 1250 Charge press. hPa: 1000 quantity 2nd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 82.00...90.00 Shutoff electromagnet Volt: 24 Overflow : 55.60...139.00 1000s.: quantity cm3/10s: (55.60...139.00) Mech. shutoff:

Mech. Abstellung:

1/min: 1250 1st speed Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1/min: 375 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Idle delivery:

1/min: 375 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.00...8.00

1**000s.:** (1.00...11.00)

cm3/: 5.5 Dispersion

1000s.: (7.0)

2nd speed

1/min: 500

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...4.00

1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

2nd speed 1/min: 420

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 70.00...120.00

1000s.: (70.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0

Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: -

KF mm: 5.0...5.4

G26

mm: 1.2...1.6 SVS max. mm: 2.2

mm: 34.8...38.8 Ya

mm: 42.7...48.1 Yb

Remarks:

: C.D.C. # 391 7037

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : CUM
Edition : 08.07.92
replaces : 18.06.90
Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R371-1 Type number : 0 460 426 158

Customer Part-No. :

Customer—specific information Customer : CASE

Engine : 6 T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750

Del. quantity cm3/

1000s : 59.00...60.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1160

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 65.00...105.00

mind 1000s.: 65.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 5.40...6.20 mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 750

TD travel mm: 3.10...3.50 Shutoff mm: (2.60...4.00) electromagnet Volt: 12 Del. quantity cm3/: 56.50...59.50 1000s.: (55.00...61.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 1/min: 750 12th speed mm: 1.00...1.80 mm: (0.70...2.10) TD travel Shutoff Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...50.50 1000s.: (40.50...52.50) 1/min: 500 1st speed Supply-pump pressure bar: 3.80...4.40 Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 750 Electr. shutoff: Supply-pump pressure bar: 4.90...5.50 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 Supply-pump Idle delivery: bar: 6.40...7.00 pressure Shutoff 1/min: 450 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 9.00...13.00
1000s.: (6.00...16.00)
Dispersion cm3/: 5.5 Overlow quantity at overflow valve: 1/min: 500 1st speed Shutoff 1000s.: (7.0) 1/min: 550 electromagnet Volt: 12 2nd speed : 41.70...83.40 Overflow Shutoff cm3/10s: (41.70...83.40) quantity electromagnet Volt: 12 1/min: 1100 2nd speed Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 Automatic starting fuel delivery: cm3/10s: (55.60...139.00) quantity 1st speed 1/min: 180 Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...125.00 1000s.: (65.00...125.00) 2nd speed 1/min: 1230 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.50...57.50 1000s.: (17.50...57.50) 1/min: 1180 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...33.00 1000s.: (13.00...33.00) 5th speed 1/min: 1160 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 65.00...105.00 1000s.: (65.00...105.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.00...46.00) Shutoff electromagnet: 1/min: 1100 9th speed

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.0...5.4
MS mm: 0.8...1.2
SVS max. mm: 4.1
XK mm: 18.8...20.8
XL mm: 10.2...13.6
Ya mm: 34.8...38.8
Yb mm: 39.7...45.1

Remarks:

: C.D.C. # 391 8207

Overflow restriction 0.55 mm - Part No. ..303

Heavy-duty fuel-injection pump for DI-engines: only test using timing-device-travel measuring device with metal jacket

Note inst. in remarks column

: CUM Test scheet Edition : 06.07.92 replaces : 18.06.90 Calibrating oil : ISO-4113

: VE6/12F1000R369-1 Injection pump : 0 460 426 167 Type number

Customer Part-No. :

Customer-specific information

Customer

: 6BT- 5.9 IND. Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Operi ina

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 750

Setting value bar: 3.60...4.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900

Del. quantity cm3/ 1000s.: 73.00...74.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

1/min: 500 Speed

Del. quantity cm3/

1000s.: 4.00...10.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1045

Del. quantity cm3/ 1000S.: 60.00...66.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...130.00

1000s.: 70.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1000 2nd speed

mm: 4.80...5.60 TD travel mm: (4.50...5.90)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

H<sub>0</sub>2

10 travel mm: 3.503.90	+ Shutoff
ma: (3.004.40)	🖟 electromagnet Volt: 24
Shutoff	† Del. quantity cm3/: 70.5073.50
electromagnet Volt: 24	1000s.: (69.0075.00)
4th speed 1/min: 500	+ 10th speed 1/min: 750
TD travel mm: 1.402.20	+ Shutoff
mm: (1.102.50)	electromagnet Volt: 24
Shutoff	Del. quantity cm3/: 74.5077.50
electromagnet Volt: 24	10008:: (72.5079.50)
eceesi onagrice voce. Ex	
Simply was an account abandatanistis.	
Supply-pump pressure characteristic:	+ Shutoff
Ant mand Alman COO	+ electromagnet Volt: 24
1st speed 1/min: 500	- Del. quyntity cm3/: 73.0074.00
Supply-pump	† 1000\$.: (70.5076.50)
pressure bar: 2.603.20	+ 20th speed 1/min: 500
Shutoff	+ Shutoff
electromagnet Volt: 24	+ electromagnet Volt: 24
2nd speed 1/min: 750	+ Del. quantity cm3/: 58.5066.50
Supply-pump	+ 1000s.: (56.5068.50)
pressure bar: 3.604.20	+
Shutoff	+ Mech. shutoff:
electromagnet Volt: 24	Mech. Abstellung:
3rd speed 1/min: 1000	T Meen. Abstettung.
	T 1st seed 1/min (000
Supply-pump	1st speed 1/min: 1000
pressure bar: 4.605.20	+ Del. quantity cm3/: 0.003.00
Shutoff	10005.: (0.003.00)
electromagnet Volt: 24	+ Shutoff
	+ electromagnet volt: 24
Overlow quantity at overflow valve:	
:	↓ Electr. shutoff:
1st speed 1/min: 500	+
Shutoff	1st speed 1/min: 500
electromagnet Volt: 24	+ Del. quantity cm3/: 0.003.00
Overflow : 41.7083.40	10008.: (0.003.00)
quantity cm3/10s: (41.7083.40)	10000
2nd speed 1/min: 1000	Idle delivery:
Shutoff	T idle delivery:
	1-
electromagnet Volt: 24 Overflow : 55.60139.00	+ 1st speed 1/min: 500
	+ Shutoff
quantity cm3/10s: (55.60139.00)	+ electromagnet Volt: 24
	+ Del. quantity cm3/: 4.0010.00
Delivery-quant. and breakaway char.:	+ 1000s.: (2.0012.00)
	+ Dispersion cm3/: 5.5
	+ 1000s.: (7.0)
2nd speed 1/min: 1170	1000s.: (7.0)
2nd speed 1/min: 1170 Shutoff	1000s.: (7.0) - 2nd speed 1/min: 540
Shutoff	1000s.: (7.0) - 2nd speed 1/min: 540 - Shutoff
Shutoff electromagnet Volt: 24	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00	1000s:: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100 Shutoff	1000s:: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000S.: (25.0045.00)	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130 Shutoff
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) 3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000S.: (25.0045.00) 5th speed 1/min: 1045	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130  Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)  3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000s.: (25.0045.00)  5th speed 1/min: 1045 Shutoff	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 80.00140.00
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000S.: (25.0045.00)  5th speed 1/min: 1045 Shutoff electromagnet Volt: 24	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130  Shutoff electromagnet Volt: 24
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000S.: (25.0045.00)  5th speed 1/min: 1045 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.0066.00	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 80.00140.00
Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  3rd speed 1/min: 1100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.0045.00 1000S.: (25.0045.00)  5th speed 1/min: 1045 Shutoff electromagnet Volt: 24	1000s.: (7.0)  2nd speed 1/min: 540  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 0.003.00  1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 130  Shutoff electromagnet Volt: 24  Del. quantity cm3/: 80.00140.00

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 30.00...60.00
1000S:: (30.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

## Shutoff electromagnet:

Cut-in

min voltage : 20.0 : 24.0 Rated voltage

## Mounting and assembly dimensions:

Designation

K mm: -

KF mm: 5.0...5.4 mm: 0.8...1.2 MS

mm: 1.2 SVS max.

XK mm: 18.8...20.8 XL mm: 9.9...13.3 mm: 34.8...38.8 mm: 35.7...41.3 Ya Yb

#### Remarks:

: C.D.C. # 391 6972

Overflow restriction 0.55 mm - Part No. ...303

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : CUM

Edition : 06.07.92 replaces : 28.03.90 Calibrating oil : ISO-4113

Injection pump : VE6/12F1050R373-6 Type number : 0 460 426 172

Customer Part-No. :

Customer—specific information Customer : CUMMINS

Engine : 6 BTA5.9

TEST BENCH REQUIREMENTS

Calibrating-oil return temp. °C

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 016

Opening

Pressure bar: 147.00...150.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.6

mm: +-0.02(0.06)

Outlet : D

Injection pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750 Charge press. hPa: 750

Setting value mm: 1.50...1.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750 Charge press hPa: 750

Setting value bar: 3.60...4.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750 Charge press. h?a: 750

Del. quantity cm3/

1000s.: 91.00...92.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

bel. quantity cm3/

1000s.: 66.00...67.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 21.50...25.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 1100 Charge press hPa: 750

Del. quantity cm3/

1000s.: 64.50...70.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 95.00...145.00

mind 1000s.: 95.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications - Test specifications in parentheses -	1nd and 1/min. (00
Timing-device characteristic:	- 1nd speed 1/min: 600 - Charge-air pressure-setting - point hPa: 400
2nd speed 1/min: 1050	LDA-stroke mm: 6.2
Charge press hPa: 750	Shutoff
TD travel mm: 2.603.40	electromagnet Volt: 12
mm: (2.303.70)	Del. quantity cm3/: 82.5083.50
Shutoff -	1000s.: (79.0087.00)
electromagnet Volt: 12	- 2nd speed 1/min: 1170
3rd speed 1/min: 750 -	Charge press. hPa: 750
Charge press hPa: 750	Shutoff
TD travel mm: 1.501.90 - mm: (1.002.40)	electromagnet Volt: 12
Shutoff -	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
electromagnet Volt: 12	3rd speed 1/min: 1120
4th speed 1/min: 500	Charge press. hPa: 750
Charge press hPa: 750	- Shutoff
TD travel mm: 0.401.20	electromagnet Volt: 12
mm: (0.101.50)	Del. quantity cm3/: 15.0055.00
Shutoff	1000s.: (15.0055.00)
electromagnet Volt: 12 -	5th speed
Complete memory and an analysis of the contract of the contrac	- Charge press. hPa: 750
Supply-pump pressure characteristic:	- Shutoff
1st speed 1/min: 500	electromagnet Volt: 12
Charge press. hPa: 750	Del. quantity cm3/: 64.5070.50 1000s.: (61.5073.50)
Supply—pump -	9th speed 1/min: 1050
pressure bar: 2.503.10	Charge press. hPa: 750
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 750	Del. quantity cm3/: 78.5081.50
Charge press. hPa: 750	19005.: (77.0083.00)
Supply-pump -	12th speed 1/min: 750
pressure bar: 3.604.20 - Shutoff	Charge press. hPa: 750
electromagnet Volt: 12	Shutoff
3rd speed 1/min: 1050	electromagnet Volt: 12 Del. quyntity cm3/: 91.0092.00
Charge press. hPa: 750	1000s.: (88.5094.50)
Supply-pump -	18th speed 1/min: 500
pressure bar: 4.905.50	Shutoff
Shutoff -	electromagnet Volt: 12
electromagnet Volt: 12	- Del. quantity cm3/: 66.0067.00
A company management of the control of	1000s.: (62.5070.50)
Overlow quantity at overflow valve:	20th speed 1/min: 500
1st speed 1/min: 500	Charge press. hPa: 750
Shutoff -	Shutoff electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 100.00108.00
Overflow : 41.7083.40	1000s.: -
quantity cm3/10s: (41.7083.40)	1
2nd speed 1/min: 1050	Mech. shutoff:
Charge press. hPa: 750	- Mech. Abstellung:
Shutoff	<b>†</b>
electromagnet Volt: 12	1st speed 1/min: 1050
Overflow : 55.60139.00 - quantity cm3/10s: (55.60139.00)	Charge press. hPa: 750
quartity (1107-105, (33,001,1.137,00)	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
Delivery-quant. and breakaway char.:	-
- · · · · · · · · · · · · · · · · · · ·	•

Shutoff

electromagnet volt: 12

Electr. shutoff:

1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 375

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 21.50...25.50

1000s.: (18.50...28.50)

cm3/: 3.5Dispersion

1000s.: (6.0)

1/min: 450 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 100.00...150.00

1000s.: (100.00...150.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 95.00...145.00

1000s.: (95.00...145.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

: 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

Κ mm: -

KF mm: 5.0...5.4 MS mm: 1.3...1.7

LDA stroke mm: 6.2

mm: 34.8...38.8 Ya

Yb mm: 44.2...49.8 Remarks:

: E.D.E. # 391 7544

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Heavy-duty fuel-injection pump for DI-engines: only test using timingdevice-travel measuring device with metal jacket

Note inst. in remarks column

Test scheet : CUM

Edition : 07.07.92 : 29.06.92 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1100R381-8 Type number : 0 460 426 200

Customer Part-No.:

Customer-specific information

Customer : CDC

Engine : 68T- 5.9 IND.

KW: 64 Power Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 : 42...50 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 1100

Del. quantity cm3/

1000s.: 49.50...50.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1150

Del. quantity cm3/

1000s.: 33.50...39.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 50.00...90.00

1000s.: 50.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100

TD travel mm: 6.10...6.90 mm: (5.80...7.20)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

mm: 3.30...3.70 TD travel

mm: (2.80...4.20)

80H

Del. quyntity cm3/: 49.50...50.50 1000s.: (47.00...53.00) 15th speed 1/min: 750 Shutoff alectromagnet Volt: 24 4th speed 1/min: 500 15th speed mm: 1.30...2.10 TD travel Shutoff mm: (1.00...2.40) Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff 1/min: 500 1st speed Supply-pump bar: 2.40...3.00 pressure Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quantity cm3/: 32.50...40.50 1000s.: (30.50...42.50) Supply-pump bar: 3.50...4.10 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1100 3rd speed 1st speed 1/min: 1100 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) Supply-pump bar: 5.10...5.70 pressure Shutoff electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 600 1st speed Shutoff 1/min: 375 1st speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 : 41.70...83.40 Overflow 1000s.: (0.00...3.00) cm3/10s: (41.70...83.40) quantity 2nd speed 1/min: 1100 Idle delivery: Shutoff electromagnet Volt: 24 1/min: 375 1st speed : 55.60...139.00 Overflow Shutoff cm3/10s: (55.60...139.00) electromagnet Volt: 24 Del. quantity cm3/: 17.00...23.00 *quantity* 1000s.: (15.00...25.00) Delivery-quant. and breaksway char .: cm3/: 5.5 1000s.: (7.0) Dispersion 2nd speed 1/min: 1200 1/min: 480 2nd speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1160 3rd speed Shutoff Automatic starting fuel delivery: 2nd speed 1/min: 375 5th speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 20.00...40.00
1000S.: (20.00...40.00) Shutoff electromagnet Volt: 24
Del. quantity cm3/: 33.50...39.50
1000s.: (30.50...42.50) 1/min: 1100 12th speed 4th speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24

H09

Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mn: -

mm: mm: 5.0...5.4
mm: 1.0...1.4
mm: 34.8...38.8
mm: 42.4...47.6 KF MS Ya Yb

Remarks:

: C.D.C. # 392 2411

Note inst. in remarks column

Test scheet

Edition 30.06.92 replaces 26.07.88 Calibrating oil : ISO-4113

: VE4/8F2150R316 Injection pump : 0 460 484 019 Type number

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : XUD7TE

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening.

Pressure bar: 130.00...133.00

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 46.50...47.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 29.50...30.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000S.: (2.5)

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2375 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 18.00...24.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...85.00

1000s.: 45.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Seed.

Charge press hPa: 1000	+ Shutoff
Inj.¬qty. cm3/	+ electromagnet Volt: 12
difference 1000s.: 29.0035.00*	+ 3rd speed 1/min: 2000
Shutoff	+ Charge press. hPa: 1000
electromagnet Volt: 12	+ Supply-pump
TD-travel dif.measurement	+ pressure bar: 6.306.90
correttore anticipo iniezione (SV)	+ Shutoff
1. Speed 1/min: 1250	
	electromagnet Volt: 12
Charge press hPa: 1000 TD-travel	A contact many that the second
	† Overlow quantity at overflow valve:
difference mm: 0.400.60*	†
Shutoff	+ 1st speed 1/min: 500
electromagnet Volt: 12	+ Shutoff
SP pressdif.measurement	+ electromagnet Volt: 12
pompa di mandata (FP)	+ Overflow : 41.7083.40
1.Speed 1/min: 1250	+ quantity cm3/10s: (41.7083.40)
Charge press hPa: 1000	+ 2nd speed 1/min: 2100
Supply pump	+ Shutoff
pressure	+ electromagnet Volt: 12
difference bar: 0.100.30#	+ Overflow : 55.60139.00
Shutoff	
electromagnet Volt: 12	quantity cm3/10s: (55.60139.00)
etectrollagnet vott. 12	T pulsus many and the t
Tanana Mana aran ka ka aran Arri	† Delivery-quant. and breakaway char.:
Inspection-pump test specifications	†
Test specifications in parentheses	+
	+ 1nd speed 1/min: 750
Timing-device characteristic:	+ Charge-air pressure-setting
	+ point hPa: 300
2nd speed 1/min: 2000	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 5.906.70	Del. quantity cm3/: 38.5039.50
mm: (5.607.00)	+ 1000s.: (36.5041.50)
Shutoff	4 3rd speed 1/min: 2525
electromagnet Volt: 12	Charge press. hPa: 1000
3rd speed 1/min: 1250	
	+ Shutoff
Charge press hPa: 1000	+ electromagnet Volt: 12
TD travel mm: 3.003.40	+ Del. quantity cm3/: 0.006.00
mm: (2.703.70)	† 1000s.: (0.006.00)
Shutoff	+ 5th speed 1/min: 2375
electromagnet Volt: 12	+ Charge press. hPa: 1000
4th speed 1/min: 750	+ Shutoff
Charge press hPa: 300	+ electromagnet Volt: 12
TD travel mm: 1.001.80	+ Del. quantity cm3/: 18.0024.00
mm: (0.702.10)	+ 1000s.: (17.0025.00)
Shutoff	+ 8th speed 1/min: 2275
electromagnet Volt: 12	+ Charge press. hPa: 1000
o cootrollagrico vocci. Te	+ Shutoff
Supply-pump pressure characteristic:	
supply pulip pressure that acter is tre.	electromagnet Volt: 12
1-4 1/in . 750	† Del. quantity cm3/: 33.0039.00
1st speed 1/min: 750	10008.: (32.0040.00)
Charge press. hPa: 300	+ 9th speed 1/min: 2100
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 3.504.10	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 45.0047.00
2nd speed 1/min: 1250	+ 1000s.: (43.7048.30)
Charge press. hPa: 1000	+ 10th speed 1/min: 2000
Supply-pump	+ Charge press. hPa: 1000
pressure bar: 4.705.30	+ Shutoff
	electromagnet Volt: 12

_				
Del. quantity cm3/:	45.0047.00	+	Shutoff	
1 <b>000</b> S.:	(43.7048.30)	+	electromagnet Volt:	12
11th speed 1/min:	1500	1	Del. quantity cm3/:	8 50 12 50
Charge press. hPa:		1	1000	(6.5014.50)
Shutoff	1000	Ţ		2.4
*	12	T		
electromagnet Volt:		†	1000s.:	(3.0)
Del. quantity cm3/:		+		
1000s.:		+	High Idle:	
12th speed 1/min:	1250	+	-	
Charge press. hPa:	1000	1	1st speed 1/mi:	450
Shutoff		1	Shutoff	.50
electromagnet Volt:	12	1	electromagnet Volt:	12
Del. quyntity cm3/:	/4 50	T	Dol manifely 27/	8.00 43.00
		T	Del. quantity cm3/:	0.0012.00
	(44.7049.30)	+	10005.:	(6.0014.00)
15th speed 1/min:		+	Dispersion cm3/:	2.6
Charge press. hPa:	1000	+	1000s.:	(3.0)
Shutoff		+		
electromagnet Volt:	12	+	Residual:	
Del. quantity cm3/:		1		
	(44.2048.80)	1	1.Rotacao 1/min:	550
17th speed 1/min:		T		J)()
	730	T	Shutoff	10
Shutoff	4.0	+	electromagnet Volt:	
electromagnet volt:		+	Del. quantity cm3/:	2.006.00
Del. quantity cm3/:	30.0032.00	+	1000s.:	(0.507.50)
1000H.:	(28.7033.30)	+		
18th speed 1/min:	500	1	Load-dependent star	t of delivery:
Shutoff	200	1	Injqty.dif.measur	
electromagnet Volt:	10	T	ing. qcy.um.measur	cilici it.
		T	A = 4 = 1	4250
Del. quantity cm论/:		†	1st speed 1/min:	
	(27.7032.30)	+	Charge press. hPa:	1000
20th speed 1/min:		+	Inj.—qty. cm3/ :	29.0035.00*
Charge press. hPa:	1000	+	difference 1000s.:	(28.0036.00)
Shutoff		1	2nd speed 1/min:	
electromagnet Volt:	12	1	Charge press. hPa:	
Del. quantity cm3/:		1	Injqty. cm3/:	27 00 20 00#
	(42.2046.80)	T	difference 1000c	(27 00 20 00)
10003	(42.2040.00)	Ť	difference 1000s.:	(27.0029.00)
March - 1 4 - 66		†	Shutoff	4.5
Mech. shutoff:		+	electromagnet Volt:	12
Mech. Abstellung:		+	2nd speed 1/min:	
		+	Charge press. hPa:	1000
1st speed 1/min:	2100	+	TD-travel :	
Charge press. hPa:	1000	+	difference mm:	(0.40.0.60)
Del. quantity cm3/:	0.00 3.00	$\perp$	Shutoff	(3.455.00)
10005	(0.003,00)	1	electromagnet Volt:	10
Shutoff	(0.005,00)	T	/th spend 1/min	1250
	43	T	4th speed 1/min:	
electromagnet volt:	12	+	Charge press. hPa:	
		+	TD-travel :	0.401.00'
Electr. shutoff:		+	difference mm:	(0.401.00)
		+	2nd speed 1/min:	1250
1st speed 1/min:	350	+	Charge press. hPa:	
Del. quantity cm3/:		1	Supply pump-	. 303
	(0.003.00)	1	nreceure .	0 10 0 30#
	.0.00	1.	pressure :	(n 1n - n 2n)
Dampon not otice		T	difference bar:	(0.100.30)
Damper set qty.:		†	Shutoff	40
1 FO = - 1 1 1		†	electromagnet Volt:	12
LFG-setting:		+	4th speed 1/min:	
solidale con carcas	sa:	+	Charge press. hPa:	1000
Idle delivery:		+	Supply pump-	
•		Ţ	pressure :	0.601.001
1st speed 1/min:	350	1	difference bar:	(0 60 1 00)
1		1	arrana da la compania de  compania del compania de la compania del la compania de la compania de	(31001111100)

H13

Shutoff

electromagnet Volt: 12

## Automatic starting fuel delivery:

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (25.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 45.00...85.00 1000s.: (44.00...84.00)

#### Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

## Mounting and assembly dimensions:

## Designation

mm: 3.2...3.4 mm: 5.1...5.5 K KF mm: 1.2...1.6 mra: 19.7...21.7 mm: 76.0...88.0 MS Ya Yb

#### Remarks:

\* Correction at adjusting nut (46)

Note inst. in remarks column

Test scheet : VWW Edition : 02.07.92 : 01.02.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/8F2450L331 Type number : 0 460 484 021

Customer Part-No. :

Customer-specific information

Customer

Engine : 1.31 Saugd., POLO

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500

Setting value mm: 3.90...4.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 23.60...24.60

Shutoff

electromagnet Voit: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575

Del. quantity cm3/

1000s.: 2.50...3.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 32.00...82.00 mind 1000s.: 32.00

mind

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200

TD travel mm: 6.90...7.70 mm: (6.60...8.00)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

mm: 3.90...4.30 TD travel mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 1000

mm: 1.60...2.40 TD travel mm: (1.30...2.70)

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1/min: 800 1st speed

Supply-pump

bar: 3.70...4.30 pressure

Shutoff	+	Shutoff	
electromagnet Volt: 12	+	electromagnet Volt:	12
2nd speed 1/min: 1500	+	Del. quantity cm3/:	18.5021.50
Supply-pump	+	1000s.:	(17.0023.00)
pressure bar: 5.40	6.00 +		
Shutoff	+	Mech. shutoff:	
electromagnet Volt: 12	+		
3rd speed 1/min: 2450	+	Electr. shutoff:	
Supply-pump	+		
pressure bar: 7.70	8.30 +	1st speed 1/min:	450
Shutoff	+	Del. quantity cm3/:	
electromagnet Volt: 12	<del>1</del>		(0.003.00)
-	+		
Overlow quantity at overflo	w valve:	Damper set qty.:	
	+		
1st speed 1/min: 800	+	LFG-setting:	
Shutoff	4-	solidale con carcas	sa:
electromagnet Volt: 12	+	Idle delivery:	
Overflow : 41.70	.83.40	•	
quantity cm3/10s: (27.80.	97.30)	1st speed 1/min:	425
2nd speed 1/min: 2450	+	Shutoff	
Shutoff	+	electromagnet Volt:	12
electromagnet Volt: 12	+	Del. quantity cm3/:	
Overflow : 55.60	.139.00 🗼	1000s.:	(6.5014.50)
quantity cm3/10s: (41.70.	152.90)	2nd speed 1/min:	
•	+	Shutoff	
Delivery-quant. and breakaw	ay char.:	electromagnet Volt:	12
• • • • • • • • • • • • • • • • • • • •	-	Del. quantity cm3/:	5.508.50
	<u> </u>	10005	(3.0011.00)
2nd speed 1/min: 2850	1	Dispersion cm3/:	
Shutoff	1	10005.:	
electromagnet Volt: 12	1	10000	(5.0)
Det. quantity cm3/: 0.00	6.00	Residual:	
1000s.: (0.00		nes roda e.	
3rd speed 1/min: 2650	1	1.Rotação 1/min:	575
Shutoff	1	Shutoff	J1 J
electromagnet Volt: 12	1	electromagnet Volt:	12
Del. quantity cm3/: 5.50	15 50	Del. quantity cm3/:	250 350
10008.: (4.50		10000	(1.005.00)
5th speed 1/min: 2600	1	2nd speed 1/min:	
Shutoff	I	Shutoff	363
electromagnet Volt: 12	$\perp$	electromagnet Volt:	12
Del. quantity cm3/: 13.00	17 00 I	Del. quantity cm3/:	
10005.: (11.00.			(1.506.50)
9th speed 1/min: 2450	I	10003	(1.500.50)
Shutoff	I	Automatic starting	fual dalivanus
electromagnet Volt: 12	$\mathbf{I}$	Automatic Starting	ruet detivery:
Del. quantity cm3/: 21.50	27 50 T	1st spend 1/min.	200
1000s.: (20.30.		1st speed 1/min:	200
10th speed 1/min: 600	··24.70) T	Shutoff	10
Shutoff	T	electromagnet Volt:	
	Ť	Del. quantity cm3/:	
electromagnet Volt: 12	10 50 T	10005.:	(30.0080.00)
Del. quantity cm3/: 14.50 1000s.: (12.00.		2nd annad 1/	(00
		2nd speed 1/min:	400
12th speed	†	Shutoff	10
	†	electromagnet Volt:	
electromagnet Volt: 12	2/ 40	Del. quantity cm3/:	
Del. quyntity cm3/: 23.60	· 24 · 0U	1000S.:	(10.0030.00)
1000s.: (21.90.	20.30)	1.6	400
20th speed 1/min: 800	+	4th speed 1/min:	100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 32.00...82.00 1000s.: (32.00...82.00)

# Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

# Mounting and assembly dimensions:

Designation

K KF mm: 3.2...3.4

mm: -

mm: 1.2...1.6 mm: 32.5...36.5 mm: 53.9...64.5 MS

Ya Yb

Remarks:

H17

Charge press hPa: 1000 BOSCH-INJ.-PUMP TEST SPECIFICATIONS Setting value bar: 5.70...6.30 KSB/AFB Note inst. in remarks column valve Volt: 12 Shutoff Test scheet : FIA electromagnet Volt: 12 Edition : 03.07.92 replaces : 11.05.89 Full-load del. with charge press.: Calibrating oil : ISO-4113 1/min: 1500 Speed Injection pump : VE4/8F2400R349 Charge press. hPa: 1000 Type number : 0 460 484 028 Det. quantity cm3/ Customer Part-No. : 1000s.: 39.70...40.70 KSB/AFB Volt: 12 valve Customer-specific information Shutoff Customer : FIAT-AUTO electromagnet Volt: 12 cm3/: 3.0Dispersion Engine : M709 BT 13.0 1000S.: (3.5) TEST BENCH REQUIREMENTS Full-load del. w/out charge press.: Overflow restricti: 1 463 456 303 Speed 1/min: 750 Del. quantity cm3/ Calibrating-oil 1000s.: 26.30...27.30 return temp. KSB/AFB with thermometer : 40...48 valve Volt: 12 Electronically : 42...50 Shutoff electromagnet Volt: 12 Inlet press., bar: 0.30...0.40 Low-idle speed regulation Calibrating nozzle-holder assembly : 1 688 901 022 1/mir:: 400 Speed Del. quantity cm3/ Opening 1000s.: 6.00...10.00 Pressure bar: 130.00...133.00 KSB/AFB Volt: 12 \ valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.0 Test inj. tubing : 1 680 750 073 Outside diameter : 6.00 1000s.: (3.\$) x Wall thickness : 2.00 mm: 450 x Length Full-load speed regulation Injection pump setting values Speed 1/min: 2550 Test specifications in parentheses Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 28.00...34.00 Timing-device travel KSB/AFB 1/min: 1500 Speed valve Volt: 12 Charge press. hPa: 1000 Shutoff Setting value mm: 4.60...5.00 electromagnet Volt: 12 AFB/AFB Volt: 12 valve Start: Shutoff electromagnet Volt: 12 1/min: 100 Del. quantity cm3/: 33.00...63.00 mind 1000s.: 33.00 Supply-pump pressure mind KSB/AFB beea 1/min: 1500 Valve Volt: 12

H18

11

Shutoff electromagnet Volt: 12	+ TD travel mm: 1.302.10	
Lond demondant start of delicer.	+ KSB/AFB	
Load-dependent start of delivery: Injqty.dif.measurement:	† valve Volt: 12 + Shutoff	
11.13. Gey 1011 medson emerte.	electromagnet Volt: 12	
Speed 1/min: 1500	+ KSB/AFB	
Charge press hPa: 1000	† valve Volt: 12	
Inj.—qty. cm3/	+ Shutoff	
difference 1000s.: 19.0025.00#	+ electromagnet Volt: 12	
KSB/AFB valve Volt: 12	+ 6th speed 1/min: 2000	
Shutoff	+ Charge press. hPa: 1000 + TD travel mm: 6.907.50	
electromagnet Volt: 12	mm: (6.507.9)	
TD-travel dif.measurement	+ KSB/AFB	
correttore anticipo iniezione (SV)	+ valve Volt: 12	
1. Speed 1/min: 1500	+ Shutoff	
Charge press hPa: 1000	+ electromagnet Volt: 12	
TD-travel	+ 9th speed 1/min: 300	
difference mm: 0.901.10#	Charge press. hPa: 1000	
KSB/AFB valve Volt: 12	+ TD travel mm: 2.304.70	
Shutof?	mm: (2.304.7) + Shutoff	J)
electromagnet Volt: 12	4	
SP press.—dif.measurement	† electromagnet Volt: 12	
pompa di mandata (FP)	Supply-pump pressure characteris	stic.
1. Speed 1/min: 1500	- Copper pand pressure character is	5010,
Charge press hPa: 1000	1st speed 1/min: 2400	
Supply pump	Charge press. hPa: 1000	
pressure	- Supply-pump	
difference bar: 0.100.30*	+ pressure bar: 7.808.40	
KSB/AFB	+ KSB/AFB	
valve Volt: 12	+ valve Volt: 12	
Shutoff	† Shutoff	
electromagnet Volt: 12	+ electromagnet Volt: 12	
Inspection-pump test specifications	+ 2nd speed 1/min: 2000 + Charge press. hPa: 1000	
Test specifications in parentheses	+ Supply-pump	
The second of th	+ pressure bar: 6.807.40	
Timing-device characteristic:	+ KSB/AFB	
	+ valve Volt: 12	
2nd speed 1/min: 2400	+ Shutoff	
Charge press hPa: 1000	+ electromagnet Volt: 12	
TD travel mm: 8.609.40	+ 3rd speed 1/min: 1500	
mm: (8.309.70)	+ Charge press. hPa: 1000	
KSB/AFB valve Volt: 12	+ Supply-pump	
valve Volt: 12 Shutoff	+ pressure bar: 5.706.30	
electromagnet Volt: 12	+ KSB/AFB + valve Volt: 12	
3rd speed 1/min: 1500	+ Shutoff	
Charge press hPa: 1000	+ electromagnet Volt: 12	
TD travel mm: 4.605.00	4th speed 1/min: 750	
mm: (4.105.50)	+ Charge press. hPa: 1000	
KSB/AFB	+ Supply-pump	
valve Volt: 12	+ pressure bar: 3.904.50	
Shutoff	+ KSB/AFB	
electromagnet Volt: 12	+ valve Volt: 12	
4th speed 1/min: 750	+ Shutoff	
Charge press hPa: 1000	+ electromagnet Volt: 12	
	†	

Overlow quantity at	overflow valve:	† Shutoff
	700	+ electromagnet Volt: 12
1st speed 1/min:	750	Del. quantity_cm3/: 38.5041.50
KSB/AFB	40	1000\$.: (37.5042.50)
valve Volt:	12	12th speed 1/min: 1500
Shutoff		Charge press. hPa: 1000
electromagnet Volt:		+ KSB/AFB
Overflow :	41.7083.40	tyalve Volt: 12
quantity cm3/10s:	(41.7083.40)	Shutoff
2nd speed 1/min:	2400	electromagnet Volt: 12
Charge press. hPa:	1000	Del. quyntity cm3/: 39.7040.70
KSB/AFB	42	+ 1000s.: (37.9042.50)
valve Volt:	12	16th speed 1/min: 1100
Shutoff	. 13	KSB solenoid-operated
electromagnet Volt:		t valve volt: 12
	55.60139.00	+ Shutoff
quantity cm3/10s:	(35,60139,00)	f electromagnet volt: 12
Ralds came and and		+ Del. quantity cm3/: 26.4029.40
Delivery-quant. and	preakaway char.:	1000H.: (24.9030.90)
	•	18th speed 1/min: 750
and anal attack	4400	KSB/AFB
1nd speed 1/min:		+ valve Volt: 12
Charge-air pressure		Shutoff
	400	electromagnet Volt: 12
LDA-stroke mm: KSB/AFB	0.0	Del. quantity cm3/: 26.3027.30
valve Volt:	43	† 1000s.: (23.8029.80)
Shutoff	12	T March aloua co
	40	Mech. shutoff:
electromagnet Volt:		The same of the sa
Del. quantity cm3/:	(31.0037.00)	Electr. shutoff:
2nd speed 1/min:	7050	1-h annual 1(min /00
Charge press. hPa:		1st speed 1/min: 400
KSB/AFB	1000	Del. quantity cm3/: 0.003.00
valve Volt:	12	1000s.: (0.003.00) KSB/AFB
Shutoff	12	+ Valve Volt: 12
electromagnet Volt:	10	T valve volt: 12
Del. quantity cm3/:		Idle delivery:
	(0.003.00)	Tute detivery:
3rd speed 1/min:		1st speed 1/min: 400
Charge press. hPa:	1000	KSB/AFB
KSB/AFB	1900	valve Volt: 12
valve Volt:	12	+ Shutoff
Shutoff	12	electromagnet Volt: 12
electromagnet Volt:	12	Del. quantity cm3/: 6.0010.00
Del. quantity cm3/:		10008.: (3.0013.00)
	(4.0014.00)	Dispersion cm3/: 3.0
5th speed 1/min:		1000s.: (3.5)
Charge press. hPa:		2nd speed 1/min: 520
KSB/AFB		+ KSB/AFB
valve Volt:	12	valve Volt: 12
Shutoff		Shutoff
electromagnet Volt:	12	electromagnet Volt: 12
Del. quantity cm3/:		Del. quantity cm3/: 0.003.00
	(25.0037.00)	10005.: (0.003.00)
9th speed 1/min:		3rd speed 1/min: 350
Charge press. hPa:		KSB/AFB
KSB/AFB	· · · · · · · · · · · · · · · · · · ·	valve Volt: 12
valve Volt:	12	Shutoff
1200	· <del>-</del>	electromagnet Volt: 12

Del. quantity cm3/: 14.50...19.50 1000s.: -Load-dependent start of delivery: Inj.-qty.dif.measurement: 2nd speed 1/min: 1500 Charge press. hPa: 1000 Inj.-qty. cm3/: 18.00..20.00\* difference 1000s.: (18.00...20.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 4th speed 1/min: 1500 Charge press. hPa: 1000 cm3/: 19.00..25.00# Inj. aty. difference 1000s.: (18.00...26.00) KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Charge press. hPa: 1000 : 0.90...1.10# TD-travel difference mm: (0.90...1.10) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed Charge press. hPa: 1000 Supply pumppressure : 0.10...0.30\* difference bar: (0.10...0.30) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 350 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 23.00...53.00 1000s.: (23.00...53.00) 1/min: 450 2nd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00) 4th speed 1/min: 100

KSB, AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.00...63.00 1000s.: (33.00...63.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.1...5.5 mm: 1.3...1.7 MS mm: 6.0 LDA stroke mm: 36.2...40.2 mm: 39.5...48.3 Ya Yb Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Overflow restriction 0.55 mm - Part No. ...303

Note inst. in remarks column

Test scheet : REN

Edition 30.06.92 : 18.02.91 replaces Calibrating oil : ISO-4113

: VE4/8F2300R317-3 Injection pump Type number : 0 460 484 041

Customer Part-No. :

Customer-specific information

Customer : RNUR

: F8Q - 742 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/ 1000s.: 31.00...32.03

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2450

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...70.00

1000s .: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: 9.00...13.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

TD-travel

difference mm: 0.30...0.50#

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1/min: 1250 1.Speed

Supply pump pressure

difference bar: 0.10...0.30\*

Shutoff

electromagnet Volt: 12

H22

Inspection-pump tes Test specifications	t specifications + + + + + + + + + + + + + + + + + + +	2nd speed 1/min: Shutoff	2250
	+	electromagnet Volt:	12
Timing-device chara	cteristic:		55.60139.00
	+	quantity cm3/10s:	
2nd speed 1/min:	2000	4	
TD travel mm:	7.608.40	Delivery-quant. and	breakaway char
	(7.308.70)	and	or currently criar
Shutoff			
electromagnet Volt:	12	2nd speed 1/min:	2050
3rd speed 1/min:		Shutoff	L750
	4.104.50	electromagnet Volt:	12
	(3.605.00)	Del. quantity cm3/:	
Shutoff	1		(0.005.00)
electromagnet Volt:	12	3rd speed 1/min:	
4th speed 1/min:		Shutoff	2000
	1.602.40		12
	(1.302.70)	electromagnet Volt:	7 00 45 00
Shutoff Shutoff	(1.302.70)	Del. quantity cm3/:	
	12		(6.0016.00)
electromagnet Volt:	12 †	5th speed 1/min:	2450
8th speed 1/min:		Shutoff	4.5
	1.904.30	electromagnet Volt:	
	(1.904.30)	Del. quantity_cm3/:	
KSB/AFB	+		(21.0029.00)
valve Volt:	12 +	9th speed 1/min:	2250
Shutoff	+	Shutoff	
electromagnet Volt:		electromagnet Volt:	12
9th speed 1/min:	310 +	Del. quantity cm3/: 1000s.:	31.5033.50
TD travel mm:	0.603.00	1000s.:	(30.2034.80)
	(0.603.00)	10th speed 1/min:	2000
KSB/AFB	1	Shutoff	2000
valve Volt:	12	electromagnet Volt:	12
Shutoff		Del. quantity cm3/:	
electromagnet Volt:	12		(29.0033.60)
oreer emergines veger	1	11th speed 1/min:	
Supply-pump pressure	e characteristic.	Shutoff	1027
coupty parts pressure	T	electromagnet Volt:	10
1st speed 1/min:	750 T	to a supplier volt:	20 70 72 70
Supply-pump	750 T	Del. quantity cm3/:	(20 00 77 EO)
	3.103.70	1246 1/	(28.9033.50)
Shutoff	3.103.70	12th speed 1/min:	1200
	12	Shutoff	40
electromagnet Volt:		electromagnet Volt:	
2nd speed 1/min:	1200	Del. quyntity cm3/:	31.0032.00
Supply-pump	1 50 5 10	1000s.:	(29.2033.80)
	4.505.10	20th speed 1/min:	750
Shutoff	+	Shutoff	
electromagnet Volt:		electromagnet Volt:	12
3rd speed 1/min:	5000 +	Del. quantity cm3/:	30.1033.10
Supply-pump	<b>†</b>	1000s.:	(29.3033.90)
	6.407.00		
Shutoff	+	Mech. shutoff:	
electromagnet Volt:	12 +		
	4	Electr. shutoff:	
Overlow quantity at	overflow valve:	= <del>-</del>	
•	1	1st speed 1/min:	410
1st speed 1/min:	750 4	Del. quantity cm3/:	
Shutoff	1		(0.003.00)
electromagnet Volt:	12 1	, 300011	
	41.7083.40	Damper set qty.:	
quantity cm3/10c:	(/1 70 97 /0)	amper our delit	

LFG-setting: solidate con carcassa: Idle delivery:	pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump-
1st speed 1/min: 410 Shutoff	pressure : 0.100.30* difference bar: (0.100.30) Shutoff
electromagnet Volt: 12 Del. quantity cm3/: 6.5010.50 1000S.: (4.5012.50)	+ electromagnet Volt: 12 + 3rd speed 1/min: 1250 + Supply pump-
High Idle:	+ pressure : 0.200.60' + difference bar: (0.200.60) + Shutoff
1st speed 1/mi: 500 Shutoff	electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 7.0011.00 1000s.: (5.0013.00)	Automatic starting fuel delivery:
Residual:	+ 1st speed 1/min: 210 + Shutoff + electromagnet Volt: 12
1.Rotacao 1/min: 500	Del. quantity cm3/: 45.0075.00 1000s.: (45.0075.00)
Shutorf electromagnet Volt: 12 Del. quantity cm3/: 1.005.00	2nd speed 1/min: 310 + Shutoff
1000s.: (1.005.00)	electromagnet Volt: 12 Del. quantity cm3/: 15.0045.00
Load-dependent start of delivery: Injqty.dif.measurement:	1000s.: (15.0045.00) + 4th speed 1/min: 100
1st speed	+ Shutoff
difference 1000s.: (7.709.70) Shutoff	electromagnet Volt: 12  pel. quantity cm3/: 40.0070.00  1000s.: (40.0070.00)
electromagnet Volt: 12 3rd speed 1/min: 1250	+ Shutoff electromagnet:
Injqty. cm3/: 9.0013.00# difference 1000S.: (9.0013.00) Shutoff	Cut-in
electromagnet Volt: 12 5th speed  1/min: 1250	min voltage : 10.0 Rated voltage : 12.0
Injqty. cm3/: 2.008.00' difference 1000S.: (2.008.00)	Mounting and assembly dimensions:
Shutoff electromagnet Volt: 12	+ Designation + K mm: 3.23.4 + KF mm: 5.35.7
TD-travel dif.measurement: correttore anticipo iniezione (SV):	MS mm: 1.11.5 + SVS max. mm: 2.7
1st speed 1/min: 1250	+ Ya mm: 32.636.6
TD-travel : 0.300.50# difference mm: (0.300.50)	+ Yb mm: 65.778.3
Shutoff electromagnet Volt: 12	Remarks:
2nd speed 1/min: 1250 3rd speed 1/min: 1250	+ Overflow restriction 0.55 mm - Part No
TD-travel : 0.200.60' difference mm: (0.100.70)	303
Shutoff electromagnet Volt: 12	‡
SP press.—dif.measurement:	Į

Note inst. in remarks column

Test scheer : REN

Edition 30.06.92 replaces : 04.12.91 Calibrating oil : ISO-4113

: VE4/8F2300R317-5 Injection bump Type number : 0 460 484 044

Customer Part-No. :

Customer-specific information

Customer : RNUR

Engine : F8Q - 732

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 4,10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 4.50...5.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 31.00...32.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500 Speed

Del. quantity cm3/

1**000s.:** 1.**00**...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2450 Speed

Del. quantity cm3/

1**000**\$.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...70.00 mind 1000s.: 40.00

mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

cm3/Inj.—qty.

difference 1000s.: 9.00...13.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

TD-travel

difference mm: 0.30...0.50#

Shutoff

electromagnet Volt: 12 SP press.-dif.measurement pompa di mandata (FP) 1.Speed 1/min: 1250

Supply pump

pressure

bar: 0.10...0.30\* difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses	- Shutoff
Timin was it is to be a second	electromagnet Volt: 12
Timing-device characteristic:	Overflow : 55.60139.00
2nd aread 4/nth 2000	quantity cm3/10s: (55.60139.00)
2nd speed 1/min: 2000	-
TD travel imm: 7.608.40	Delivery-quant. and breakaway char.:
mm: (7.308.70)	•
Shutoff	•
electromagnet Volt: 12	- 2nd speed 1/min: 2950
3rd speed 1/min: 1250	- Shutoff
TD travel mm: 4.104.50	<ul> <li>electromagnet Volt: 12</li> </ul>
mm: (3.605.00)	- Del. quantity cm3/: 0.005.00
Shutoff	1000s.: (0.005.00)
electromagnet Volt: 12	- 3rd speed 1/min: 2650
4th speed 1/min: 750	- Shutoff
TD travel mm: 1.602.40	electromagnet Volt: 12
mm: (1.302.70)	Del. quantity cm3/: 7.0015.00
Shutoff	1000s.: (6.0016.00)
electromagnet Volt: 12	- 5th speed 1/min: 2450
8th speed 1/min: 500	- Shutoff
TD travel mm: 1.904.30 B	
	- electromagnet Volt: 12
mm: (1.904.30)	Del. quantity cm3/: 22.0028.00
KSB/AFB	- 1000s.: (21.0029.00)
valve Volt: 12	9th speed 1/min: 2250
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
9th speed 1/min: 310	- Del. quantity cm3/: 31.5033.50
TD travel mm: 0.603.00 A	- 1000s.: (30.2034.80)
mm: (0.603.00)	- 10th speed 1/min: 2000
K\$B/AFB	- Shutoff
valve Volt: 12	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 30.3032.30
electromagnet Volt: 12	- 1000s.: (29.0033.60)
Teces of the state	- 11th speed 1/min: 1625
Supply pump pressure characteristic:	
Supply pump pressure characteristic:	- Shutoff
1-t amount 1/min. 750	- electromagnet Volt: 12
1st speed 1/min: 750	- Del. quantity cm3/: 29.7032.70
Supply-pump -	- 1000s.: (28.9033.50)
pressure bar: 3.103.70	- 12th speed 1/min: 1250
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
2nd speed 1/min: 1250	- Del. quyntity cm3/: 31.0032.00
Supply-pump -	1000s.: (29.2033.80)
pressure bar: 4.505.10	- 20th speed 1/min: 750
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
3rd speed 1/min: 2000	- Del. quantity cm3/: 30.1033.10
Supply-pump -	- 1000s.: (29.3033.90)
pressure bar: 6.407.00	-
Shutoff	Mach churcht.
1	- Mech. shutoff:
electromagnet Volt: 12	
Ougalas assault s	- Electr. shutoff:
Overlow quantity at overflow valve:	
†	- 1st speed 1/min: 410
1st speed 1/min: 750	- Del. quantity_cm3/: 0.003.00
Shutoff	- 1000s.: (0.003.00)
electromagnet Volt: 12	-
Overflow : 41.7083.40	- Damper set qty.:
quantity cm3/10s: (41.7083.40)	•
2nd speed 1/min: 2250	- LFG-setting:

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solidale con carcassa: pompa di mandata (FP): Idle delivery: 1/min: 1250 1st speed Supply pump-: 0.10...0.30\* bar: (0.10...0.30) 1st speed 1/min: 410 pressure Shutoff difference Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Supply pump-1000s.: (3.0) : 0.20...0.60' pressure difference bar: (0.20...0.60) High Idle: Shutoff electromagnet Volt: 12 1st speed 1/mi: 500 Shutoff Automatic starting fuel delivery: electromagnet Volt: 12 Del. quantity cm3/: 7.00...11.00 1000s.: (5.00...13.00) 1/min: 210 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 Residual: 1000s.: (45.00...75.00) 1.Rotacao 1/min: 500 Shutoff 1/min: 310 2nd speed electromagnet Volt: 12 Shutoff Del. quantity cm3/: 1.00...5.00 electromagnet Volt: 12 1000s.: (1.00...5.00) Del. quantity cm3/: 15.00...45.00 1000s.: (15.00...45.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 4th speed 1/min: 100 Shutoff 1st speed 1/min: 1250 Inj.-qty. cm3/ : 7.70...9.70\* difference 1000s: (7.70...9.70) electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.60...70.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Inj.-qty. cm3/: 9.00...13.00# Shutoff electromagnet: Cut-in difference 1000s.: (9.00...13.00) min voltage : 10.0 Shutoff : 12.0 Rated voltage electromagnet Volt: 12 5th speed 1/min: 1250 Mounting and assembly dimensions: Inj.—qty. cm3/: 2.00...8.00' difference 1000s.: (2.00...8.00) Designation mm: 3.2...3.4 mm: 5.3...5.7 mm: 1.1...1.5 Shutoff K electromagnet Volt: 12 KF MS TD-travel dif.measurement: SVS max. mm: 1.8 correttore anticipo iniezione (SV): Ya mm: 32.6...36.6 1st speed 1/min: 1250 mm: 65.7...78.3 Yb TD-travel : 0.30...0.50# difference mm: (0.30...0.50)Remarks: Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 A = KSB adjustment point TD-travel : 0.20...0.601 B = KSB curve point difference mm: (0.10...0.70) Shutoff electromagnet Volt: 12 \* Unscrew KSB ball valve 2 mm SP press.-dif.measurement:

H27

Note inst. in remarks column

Test scheet

: 30.06.92 Edition Calibrating oil : ISO-4113

Injection pump : VE4/9F2400R312 : 0 460 494 227 Type number

Customer Part-No. :

Customer-specific information Customer : TOGLIATTI/SU

Engine : VAZ 341 LADA

KW: 40 Power

TEST BENCH REQUIREMENTS

Calibrating-oil °C return temp.

with thermometer: 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Indicator setting

Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1500 Speed

Setting value mm: 4.80...5.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500

Del. quantity cm3/ 1000s.: 32.50...33.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Low-idle speed regulation

1/min: 425

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2600 Speed

Del. quantity cm3/

1000s.: 13.00...19.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...70.00

1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2400

TD travel mm: 9.10...9.90 mm: (8.80...10.20)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1500

mm: 4.80...5.20 TD travel mm: (4.30...5.70)

Shutoff

electromagnet Volt: 12 1/min: 600 4th speed

	0.701.50	+	Shutoff
	(0.401.80)	+	electromagnet Volt: 12
Shutoff		+	Del. quantity cm3/: 28.8031.20
electromagnet Volt:	12	+	1000s.: (27.7032.30)
5th speed 1/min:		1	10th speed 1/min: 1000
	2.403.20	1	Shutoff
	(2.103.50)	Ŧ	
Shutoff	(2.10)	Τ	electromagnet Volt: 12
	12	†	Del. quantity cm3/: 33.8036.20
electromagnet Volt:	12	+	1000s.: (32.7037.30)
		+	12th speed
Supply-pump pressur	e characteristic:	+	Shutoff
		1	electromagnet Volt: 12
1st speed 1/min:	2400	1	Del. quyntity cm3/: 32.5033.50
Supply-pump	2.00	1	1000\$.: (30.7035.30)
	7.107.70	T	20th speed 1/min: 600
	7.107.70	T	
Shutoff	40	+	Shutoff
electromagnet Volt:	12	+	electromagnet Volt: 12
2nd speed 1/min:	1500	+	Del. quantity cm3/: 28.5031.50
Supply-pump		+	1000s.: (27.0033.00)
	4.805.40	1	
Shutoff	,	1	Mech. shutoff:
electromagnet Volt:	12	T	riecht. Shutoff.
		T	
3rd speed 1/min:	000	+	Electr. shutoff:
Supply-pump		+	
pressure bar:	2.603.20	+	1st speed 1/min: 425
Shutoff		+	Del. quantity cm3/: 0.003.00
electromagnet Volt:	12	1	1000s.: (0.003.00)
	. 2	1	(0.009.00)
Overlow quantity at	overflou valve:	Ţ	Idia dalivanya
over tow qualitity at	over tow valve.	T	Idle delivery:
4.5	400	†	A
1st speed 1/min:	600	+	1st speed 1/min: 425
Shutoff		+	Shutoff
electromagnet Volt:	12	+	electromagnet Volt: 12
	41.7083.40	1	Del. quantity cm3/: 8.0012.00
quantity cm3/10s:		1	10008.: (5.0015.00)
2nd speed 1/min:		1	Dispersion cm3/: 2.5
Shutoff	2400	T	
	43	T	1000s.: (2.5)
electromagnet Volt:		t	2nd speed 1/min: 550
	55.60139.00	+	Shutoff
quantity cm3/10s:	(55,60139.00)	+	electromagnet Volt: 12
		$\perp$	Del. quantity cm3/: 0.506.50
Delivery-quant. and	breakaway char.:	1	1000s.: (0.007.00)
correctly quarter area	or carraina) orial 1.	L	4th speed 1/min: 650
		Τ	Shutoff
One of amount of the same	0000	Ť	SDULOTT
2nd speed 1/min:			
Shutoff	2900	†	electromagnet Volt: 12
		‡	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
electromagnet Volt:		† + +	electromagnet Volt: 12
	12	† + + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
Del. quantity cm3/:	12 0.003.00	+ + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
Del. quantity cm3/: 1000s.:	12 0.003.00 (0.003.00)	+ + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
Del. quantity cm3/: 1000s.: 3rd speed 1/min:	12 0.003.00 (0.003.00)	+ + + + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery:
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff	12 0.003.00 (0.003.00) 2700	+ + + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery: 1st speed 1/min: 400
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt:	12 0.003.00 (0.003.00) 2700	+ + + + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff
Del. quantity cm3/: 1000S.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	12 0.003.00 (0.003.00) 2700 12 4.5011.50	+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00)	+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff
Del. quantity cm3/: 1000S.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00)	+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0040.00
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00)	+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Shutoff	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00) 2600	+ + + + + + + + + + + + + + + + + + + +	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0060.00) 1000s.: (30.0060.00)
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Shutoff electromagnet Volt:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00) 2600	<del>┦╴╏╸┩╸┩╸┩╸┩╸┩╸┩╸</del>	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0060.00 1000s.: (30.0060.00)  2nd speed 1/min: 500
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00) 2600 12 13.0019.00	<del>┦╸╏╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸</del>	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0060.00)  2nd speed 1/min: 500 Shutoff
Del. quantity cm3/: 1000s.: 3rd speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.: 5th speed 1/min: Shutoff electromagnet Volt: Del. quantity cm3/:	12 0.003.00 (0.003.00) 2700 12 4.5011.50 (3.0013.00) 2600 12 13.0019.00 (12.0020.00)	<del>┦╸╏╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸┩╸</del>	electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)  Automatic starting fuel delivery:  1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0060.00 1000s.: (30.0060.00)  2nd speed 1/min: 500

Del. quantity cm3/: 25.00...35.00 1000s.: (25.00...35.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.2...1.6 mm: 2.3 mm: 38.7...40.7 KF MS

SVS max.

Ya Yb mm: 41.5...48.5

Remarks:

:

Note inst. in remarks column

Test scheet : VWW : 01.07.92 Edition replaces : 16.01.89 Calibrating oil : ISO-4113

Injection bumb : VE4/9F2250R328 Type number : 0 460 494 239

Customer Part-No. :

Customer-specific information

Customer

Engine : 086-1.61 LLK

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 750

mm: 3.80...4.20 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 750

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000s.: 26.50...27.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 550

Del. quantity cm3/

1000s.: 2.00...3.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525 Charge press hPa: 750

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:	+
1-1	Delivery-quant. and breakaway char.:
1st speed 1/min: 2250 Charge press hPa: 750	†
Charge press hPa: 750 TD travel mm: 6.106.90	1 and around 1/min. 000
mm: (5.807.20)	1nd speed 1/min: 900
electromagnet Volt: 12	+ Change-air pressure-setting + point hPa: 300
2nd speed 1/min: 1800	+ LDA-stroke mm: 5.5
Charge press hPa: 750	Shutoff
TD travel mm: 4.805.60	electromagnet Volt: 12
mm: (4.505.90)	Del. quantity cm3/: 32.5033.50
Shutoff	1000s.: (30.0036.00)
electromagnet Volt: 12	+ 2nd speed 1/min: 2650
3rd speed 1/min: 1500	+ Charge press. hPa: 750
Charge press hPa: 750	+ Shutoff
TD travel mm: 3.804.20	+ electromagnet Volt: 12
mm: (3.304.70)	+ Del. quantity cm3/: 0.006.00
Shutoff	1000s.: (0.006.00)
electromagnet Volt: 12 4th speed	+ 5th speed 1/min: 2525
Charge press hPa: 750	+ Charge press. hPa: 750 + Shutoff
TD travel mm: 1.802.60	+ electromagnet Volt: 12
mm: (1.502.90)	Del. quantity cm3/: 13.0017.00
Shutoff	1000s.: (11.0019.00)
electromagnet Volt: 12	+ 8th speed 1/min: 2425
<del>-</del>	+ Charge press. hPa: 750
Supply-pump pressura characteristic:	+ Shutoff
	+ electromagnet Volt: 12
1st speed 1/min: 700	† Del. quantity cm3/: 26.5036.50
Charge press. hPa: 750	† 1000s.: (25.5037.50)
Supply-pump	+ 9th speed 1/min: 2250
pressure bar: 3.303.90 Shutoff	+ Charge press. hPa: 750
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1500	+ electromagnet Volt: 12 + Del. quantity cm3/: 36.3038.30
Charge press. hPa: 750	10008:: (35.1039.50)
Supply-pump	12th speed 1/min: 1500
pressure bar: 5.606.20	Charge press. hPa: 750
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
3rd speed 1/min: 2250	+ Del. quyntity cm3/: 42.0043.00
Charge press. hPa: 750	1000s.: (40.3044.70)
Supply-pump pressure bar: 7.708.30	18th speed 1/min: 700
pressure bar: 7.708.30 Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12 + Del. quantity cm3/: 26.5027.50
eccer and received the	1000s.: (34.0030.00)
Overlow quantity at overflow valve:	+ 20th speed 1/min: 700
	Charge press. hPa: 750
1st speed 1/min: 700	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 34.0037.00
Overflow : 41.7083.40	† 1000s.: (32.5038.50)
quantity cm3/10s: (27.8097.30)	+ 21th speed 1/min: 600
2nd speed 1/min: 2250 Charge press. hPa: 750	+ Shutoff
Shutoff	+ electromagnet Volt: 12 + Del. quantity cm3/: 25.0030.00
electromagnet Volt: 12	1000s.: (22.5032.50)
Overflow : 55.60139.00	10000(22.)0132.)07
quantity cm3/10s: (41.70152.90)	Mech. shutoff:

Electr. shutoff:

1/min: 425 1st speed

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Damper set gty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1st speed 1/min: 425

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 9.00...11.00 1000S.: (4.50...15.50)

cm3/: 2.5 Dispersion

1000s.: (3.0)

High Idle:

1st speed 1/mi: 525

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 9.00...11.00

1000s.: (5.00...15.00)

Residual:

1/min: 550 1.Rotacao

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.00...3.00

1000s.: (-0.50...5.50)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.50...4.50

1000s.: (0.00...7.00)

Automatic starting fuel delivery:

1/min: 150 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00

1000s.: (35.00...85.00)

2nd speed 1/min: 350

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00

1000s.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: K1

MS mm: 1.1...1.5 mm: 20.0...22.0 ΧK mm: 9.9...13.3 ΧL

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

BOSCH-INJ.-PUMP TEST SPECIFICATIONS Note inst. in remarks column Test scheet : FIA Edition : 02.07.92 : 19.07.89 replaces Calibrating oil : TSO-4113 : VE4/9F2100R343 Injection pump Type number : 0 460 494 246 Customer Part-No. : Customer-specific information Customer : FIAT-AUTO Engine : M710 DT 19 D TEST BENCH REQUIREMENTS Calibrating-oil return temp. with thermometer : 40...48 Electronically : 42...50 Inlet press., bar: 0.30...0.40 Calibrating nozzle-holder assembly : 1 688 901 022 Opening bar: 130.00...133.00 Pressure Test inj. tubing : motornah Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450 Injection pump setting values Test specifications in parentheses Timing-device travel 1/min: 800 Speed Charge press. hPa: 1000 mm: 1.50...1.90 Setting value AFB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12

valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load del. with charge press.: Speed 1/min: 1500 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 52.00...53.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5) Full-load del. w/out charge press.: 1/min: 600 Speed Del. quantity cm3/ 1000s.: 40.00...41.00 KSB/AFB 11 valve Volt: 12 Shutoff electromagnet Volt: 12 Low-idle speed regulation 1/min: 400 Speed Del. quantity cm3/ 1000s.: 11.00...15.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5) Residual-Delivery Setting 1/min: 700 Speed Del. quantity cm3/ 1000s.: 4.60...6.00 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Full-load speed regulation Speed 1/min: 2300 Charge press hPa: 1000 Del. quantity cm3/ 1000s.: 30.00...36.00 KSB/AFB Volt: 12 valve

Setting value bar: 3.20...3.80

KSB/AFB

J07

Speed

Supply-pump pressure

Charge press hPa: 1000

1/min: 800

Shutoff	+ KSB/AFB
electromagnet Volt: 12	† valve Volt: 12
	+ Shutoff
Start:	+ electromagnet Volt: 12
	+ 6th speed 1/min: 1500
Speed 1/min: 100	+ Charge press. hPa: 1000
Del. quantity cm3/: 55.0085.00	+ TD travel mm: 5.306.10
mind 1000s.: 55.00	mm: (5.006.40)
KSB/AFB	+ KSB/AFB
Valve Volt: 12	+ valve Volt: 12
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
•	+ 8th speed 1/min: 1000
Load-dependent start of delivery:	+ Charge press, hPa: 1000
Inj.—qty.dif.measurement:	+ TD travel mm: 2.505.50
, , , , , , , , , , , , , , , , , , ,	mm: (2.505.50)
Speed 1/min: 800	+ Shutoff
Inj.—qty. cm3/	+ electromagnet Volt: 12
difference 1000S.: 10.0018.00*	+ 9th speed 1/min: 500
KSB/AFB	Charge press. hPa: 1000
valve Volt: 12	+ TD travel mm: 3.204.80
Shutoff	mm: (2.505.50)
electromagnet Volt: 12	Shutoff
TD-travel dif.measurement	
correttore anticipo iniezione (SV)	+ electromagnet Volt: 12
1. Speed 1/min: 800	T Committee management about the contraction
TD-travel	Supply-pump pressure characteristic:
difference mm: 0.700.90*	1-1
	1st speed 1/min: 2100
KSB/AFB	+ Charge press. hPa: 1000
valve Volt: 12	+ Supply-pump
Shutoff	pressure bar: 7.007.60
electromagnet Volt: 12	+ KSB/AFB
SP press.—dif.measurement	+ valve Volt: 12
pompa di mandata (FP)	+ Shutoff
1. Speed 1/min: 800	+ electromagnet Volt: 12
Supply pump	+ 2nd speed 1/min: 1500
pressure	+ Charge press. hPa: 1000
difference bar: 0.100.30#	+ Supply-pump
KSB/AFB	+ pressure bar: 5.305.90
valve Volt: 12	+ KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	+ Shutoff
	+ electromagnet Volt: 12
Inspection-pump test specifications	+ 3rd speed 1/min: 800
Test specifications in parentheses	+ Charge press. hPa: 1000
•	+ Supply-pump
Timing-device characteristic:	+ pressure bar: 3.203.80
•	+ KSB/AFB
2nd speed 1/min: 2100	+ valve Volt: 12
Charge press hPa: 1000	+ Shutoff
TD travel mm: 8.209.00	+ electromagnet Volt: 12
mm: (7.909.30)	The state of the s
KSB/AFB	+ Overlow quantity at overflow valve:
valve Volt: 12	To the contract of the over the contract of th
Shutoff	1st speed 1/min: 800
electromagnet Volt: 12	+ Charge press. hPa: 1000
3rd speed 1/min: 800	KSB/AFB
Charge press hPa: 1000	+ valve Volt: 12
TD travel mm: 1.501.90	+ Shutoff
mm: (1.202.20)	electromagnet Volt: 12
110110 VIOLUTO COLUZZ	i cecenomagnet volt. 12

Overflow : 41.7083.40	+ Shutoff
quantity cm3/10s: (41.7083.40)	+ electromagnet Volt: 12
2nd speed 1/min: 2100 Charge press. hPa: 1000	+ Del. quantity cm3/: 55.5058.50 + 1000s.: -
KSB/AFB	12th speed 1/min: 1500
valve Volt: 12 Shutoff	+ Charge press. hPa: 1000 + KSB/AFB
electromagnet Volt: 12	+ valve Volt: 12
Overflow : 55.60139.00 quantity cm3/10s: (55.60139.00)	+ Shutoff
quantity this tos. (35.00139.00)	electromagnet Volt: 12 Del. quyntity cm3/: 52.0053.00
Delivery-quant. and breakaway char.:	+ 1000s.: (50.5054.50)
	+ 18th speed 1/min: 600 + KSB/AFB
1nd speed 1/min: 800	- valve Volt: 12
Charge—air pressure—setting point hPa: 400	+ Shutoff
LDA-stroke mm: 6.2	+ electromagnet Volt: 12 + Del. quantity cm3/: 40.0041.00
KSB/AFB	+ 1000s.: (38.0043.00)
valve Volt: 12 Shutoff	+ 20th speed 1/min: 800 + KSB/AFB
electromagnet Volt: 12	valve Volt: 12
Del. quantity cm3/: 43.5044.50 1000s.: (41.5046.50)	+ Shutoff
2nd speed 1/min: 2450	+ electromagnet Volt: 12 + Del. quantity cm3/: 37.0039.00
Charge press. hPa: 1000	10008:: (35.5040.50)
KSB/AFB valve Volt: 12	+ Mech. shutoff:
Shutoff	T recti. Statori.
electromagnet Volt: 12 Del. quantity cm3/: 12.0020.00	+ Electr. shutoff:
1000S.: (11.0021.00)	† 1st speed 1/min: 400
3rd speed 1/min: 2650	+ Del. quantity cm3/: 0.003.00
Charge press. hPa: 1000 KSB/AFB	† 1000s.: (0.003.00) + KSB/AFB
valve Volt: 12	+ valve Volt: 12
Shutoff electromagnet Volt: 12	homeon act at
Del. quantity cm3/: 0.007.00	Damper set qty.:
1000s.: -	+ LFG-setting:
5th speed 1/min: 2300 Charge press. hPa: 1000	<pre>+ solidale con carcassa: + Idle delivery:</pre>
KSB/ĀFB	+
valve Wolt: 12 Shutoff	+ 1st speed 1/min: 400 + KSB/AFB
electromagnet Volt: 12	t valve Volt: 12
Del. quantity cm3/: 30.0036.00	+ Shutoff
1000s.: (29.0037.00) 9th speed	+ electromagnet Volt: 12 + Del. quantity cm3/: 11.0015.00
Charge press. hPa: 1000	1000s.: (9.5016.50)
KSB/AFB valve Volt: 12	+ Residual:
Shutoff	T residual.
electromagnet Volt: 12	1.Rotacao 1/min: 700
Del. quantity cm3/: 50.5053.50 1000s.: (49.5054.50)	+ KSB/AFB + valve Volt: 12
10th speed 1/min: 300	+ Shutoff
Charge press. hPa: 1000 KSB/AFB	electromagnet Volt: 12
valve Volt: 12	+ Del. quantity cm3/: 4.006.00 + 1000s.: (3.007.00)
	,

2nd speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...9.50 1000s.: -Load-dependent start of delivery: Inj.-aty.dif.measurement: 1/min: 800 1st speed Inj.-qty. cm3/ : 8.00...10.00# difference 1000s.: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 1/min: 800 3rd speed cm3/: 10.00..18.00\* Inj.-aty. difference 1000s.: (10.00...18.00) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 800 : 0.70...0.90\* TD-travel TD-travel : 0.70...0.90\* difference mm: (0.70...0.90) KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 800 Supply pumppressure : 0.10...0.30# difference bar: -KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 220 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 57.00...83.00 1000s.: (57.00...83.00) 1/min: 300 2nd speed KSB/AFB Volt: 12 valve

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...52.50 1000s.: (37.50...52.50) 1/min: 100 4th speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.0...1.4 mm: 37.2...39.2 mm: 37.5...43.5 KF MS Ya Yb Remarks: Operate control lever after each manifold-pressure compensator pressure change. \* Correction at adjusting nut (46) Adjustment of potentiometer at control l ever Prerequisite: pump set Speed-control lever in idle position Apply d.c. voltage 3.5...3.9 V to connection 1 (positive) and connection 3 (ground). Turn potentiometer until a voltage of 3.07...3.13 V is indicated between connection 2 (positive) and connection 3 (ground). If potentiometer is set correctly, the voltage must drop to 1.0...1.4 V in max. control lever position.

\* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : REN

: 02.07.92 Edition replaces : 10.05.89 Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R345 Type number : 0 460 494 248

Customer Part-No. :

Customer-specific information

Customer : RNUR

Engine : J8S - 742

TEST BENCH REQUIREMENTS

Calibrating oil

return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1400 Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 500

Del. quantity cm3/

1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed Charge press hPa: 800

Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...100.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

Timing-device chara	acteristic:	+	Shutoff	
On all man and all of the	2000	+	electromagnet Volt:	
2nd speed 1/min:		+	Overflow :	41.7083.40
Charge press hPa:	800	+	quantity cm3/10s:	
TD travel mm:	6.207.00	+	2nd speed 1/min:	
	(6.207.00)	+	Charge press. hPa:	800
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	12
3rd speed 1/min:		+	Overflow :	55.60139.00
Charge press hPa:	800	+	quantity cm3/10s:	(55.60139.00)
TD travel mm:	4.004.40	+	•	
mm:	(3.504.90)	+	Delivery-quant. and	breakaway char .:
Shutoff		+	•	
electromagnet Volt:	12	+		
4th speed 1/min:	1000	+	1nd speed 1/min:	700
Charge press hPa:	800	1	Charge-air pressure	
TD travel mm:		1	point hPa:	
	(1.603.00)	1		5.5
Shutoff	(1.00:1:5:00)	1	Shutoff	J.J
electromagnet Volt:	12	L	electromagnet Volt:	12
6th speed 1/min:	1800		Del. quantity cm3/:	
Charge press. hPa:		I	1000 ·	(38.5044.50)
TD travel mm:		T	3rd speed 1/min:	
	(5.406.80)	T		
Shutoff	(3.400.00)	Ť	Charge press. hPa:	800
	10	†	Shutoff	45
electromagnet Volt:		†	electromagnet Volt:	16
9th speed 1/min:		†	Del. quantity cm3/:	2.5017.50
Charge press. hPa:		+		(2.5017.50)
	1.203.60	+	5th speed 1/min:	
	(1.203.60)	†	Charge press. hPa:	800
KSB/AFB		+	Shutoff	
valve Volt:	12	t	electromagnet Volt:	
Shutoff		+	Del. quantity cm3/:	
electromagnet Volt:	12	+	1000s.:	(22.0030.00)
		+	8th speed 1/min:	2700
Supply-pump pressur	e characteristic:	+	Charge press. hPa:	800
		+	Shutoff	
1st speed 1/min:		+	electromagnet Volt:	12
Charge press. hPa:	800	+	Del. quantity cm3/:	0.003.00
Supply-pump		+	1000s.:	(0.003.00)
pressure bar:	2.603.20	+	9th speed 1/min:	2000
Shutoff		+	Charge press. hPa:	
electromagnet Volt:	12	+	Shutoff	
2nd speed 1/min:	1400	+	electromagnet Volt:	12
Charge press. hPa:	800	<b>+</b>	Del. quantity cm3/:	
Supply-pump		1		(42.1046.70)
	5.105.70	1	12th speed 1/min:	
Shutoff		1	Charge press. hPa:	
electromagnet Volt:	12	1	Shutoff	000
3rd speed 1/min:		1	electromagnet Volt:	12
Charge press. hPa:		1	Del. quyntity cm3/:	
Supply-pump		1	1000	(45.2049.80)
	6.907.50	I		
Shutoff	0.70	Ι	18th speed 1/min: Shutoff	500
electromagnet Volt:	12	T		12
ctectionagnet vott:	<i>(</i> <u>C</u>	Ť	electromagnet Volt:	77 00 70 00
Aventou auntity -t	overflow	<b>T</b>	Del. quantity cm3/:	31.0038.UU
Overlow quantity at	Over tow varve:	Ť		(34.5040.50)
1st speed 1/min:	400	Ť	20th speed 1/min:	
Tat Speed TANTA:	JUU	+	Charge press. hPa:	OUU

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 44.90...47.90

1000s.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidate con carcassa:

Idle delivery:

1/min: 425 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.00...9.00

1000s.: (3.00...11.00)

High Idle:

1st speed 1/mi: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.50...9.50 1000S.: (3.50...11.50)

Residual:

1/min: 500 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.00...6.00

1000s.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...100.00

1000s.: (40.00...100.00)

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...100.00

1000s.: (60.00...100.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage

: 12.0

Mounting and assembly dimensions:

Designation

K

mm: 3.2...3.4

KF mm: 5.6...6.0 MS mm: 1.3...1.7

SVS max. mm: 3.6

mm: 38.8...42.8 Ya mm: 36.5...45.9

Operate control lever after each manifold-pressure compensator pressure

change.

\* Correction at adjusting nut (46)

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : REN

Edition : 02.07.92 replaces : 10.05.89 Calibrating oil : ISO-4113

: VE4/9F2200R345-1 Injection pump Type number : 0 460 494 249

Customer Part-No. :

Customer-specific information

Customer

Engine

: J8S - 742

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : motornah

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1400 Charge press. hPa: 800

Setting value mm: 4.00...4.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 800

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 37.00...38.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425

Del. quantity cm3/ 1000s.: 5.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Settina

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 2.00...6.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed hPa: 800 Charge press

Del. quantity cm3/

1000s.: 23.00...29.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...100.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	+	Shutoff	
		+	electromagnet Volt:	
2nd speed 1/min:		+	Overflow:	41.7083.40
Charge press hPa:	800	+	quantity cm3/10s:	(41.7083.40)
TD travel mm:	6.207.00	+	2nd speed 1/min:	
mm:	(6.207.00)	+	Charge press. hPa:	
Shutoff		1	Shutoff	
electromagnet Volt:	12	1	electromagnet Volt:	12
3rd speed 1/min:		1	Overflow :	55 60 130 00
Charge press hPa:		1	quantity cm3/10s:	
TD travel mm:		T	qualitity clib/105.	(33.00139.00)
	(3.504.90)	T	No. 3. com. m. comb. comb	hannalian ini albana i
Shutoff	(3.)04.90)	Ť	Delivery-quant. and	breakaway char.:
	12	1		
electromagnet Volt:		+		700
4th speed 1/min:		+	1nd speed 1/min:	
Charge press hPa:		+	Charge-air pressure-	
TD travel mm:		+	point hPa:	
	(1.603.00)	+	LDA-stroke mm:	5.5
Shutoff		+	Shutoff	
electromagnet Volt:	12	+	electromagnet Volt:	12
6th speed 1/min:	1800	1	Del. quantity cm3/:	
Charge press. hPa:		1	10005	(38.5044.50)
TD travel mm:		L	3rd speed 1/min:	
	(5.406.80)	1	Charge press. hPa:	
Shutoff	(9.400.00)	T		000
	10	T	Shutoff	10
electromagnet Volt:		†	electromagnet Volt:	
9th speed 1/min:		†	Del. quantity cm3/:	2.5017.50
Charge press. hPa:		+		(2.5017.50)
TD travel mm:		+	5th speed 1/min:	
	(1.203.60)	+	Charge press. hPa:	800
KSB/AFB		+	Shutoff	
valve Volt:	12	+	electromagnet Volt:	12
Shutoff		+	Del. quantity cm3/:	23.0029.00
electromagnet Volt:	12	+		(22.0030.00)
<del>-</del>		+	8th speed 1/min:	
Supply-pump pressure	e characteristic:	1	Charge press. hPa:	
a whate of the contract		1	Shutoff	C0 <b>0</b>
1st speed 1/min:	600	1	electromagnet Volt:	10
Charge press. hPa:		L	Del. quantity cm3/:	
Supply-pump	600	T		
	2.603.20	T	Oth annual 1/min.	(0.003.00)
pressure bar: Shutoff	2.005.20	T	9th speed 1/min:	2000
	10	†	Charge press. hPa:	800
electromagnet Volt:		+	Shutoff	10
2nd speed 1/min:		†	electromagnet Volt:	
Charge press. hPa:	800	†	Del. quantity cm3/:	
Supply-pump		+		(42.1046.70)
	5.105.70	+	12th speed 1/min:	1400
Shutoff		+	Charge press. hPa:	800
electromagnet Volt:	12	+	Shutoff	
3rd speed 1/min:	2000	+	electromagnet Volt:	12
Charge press. hPa:	800	1	Del. quyntity cm3/:	
Supply-pump		<b>+</b>		(45.2049.80)
pressure bar:	6.907.50	1	18th speed 1/min:	
Shutoff		1	Shutoff	000
electromagnet Volt:	12	1	electromagnet Volt:	12
occor anagaice vocc.	•	1		
Overlow quantity at	overflow values	I	Del. quantity cm3/:	71.0030.00 (7/.50 /0.50)
Over tow qualitity at	Over I COM Vacve:	T	20th aread 1/=2-	(34.5040.50)
1st speed 1/mins	400	T	20th speed 1/min:	
1st speed 1/min:	CUU	†	Charge press. hPa:	<b>0UU</b>
		+		

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 44.90...47.90

1000s.: (43.40...49.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Damper set qty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1/min: 425 1st speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.00...9.00 1000S.: (3.00...11.00)

High Idle:

1/mi: 500 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.50...9.50 1000s.: (3.50...11.50)

Residual:

1.Rotacao 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.00...6.00

1000s.: (2.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 40.00...100.00

1000s.: (40.00...100.00)

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...40.00

1000s.: (20.00...40.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...100.00

1000s.: (60.00...100.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 KF mm: 5.6...6.0 MS mm: 1.3...1.7

SVS max. mm: 3.6 mm: 5.5 LDA stroke

mm: 38.8...42.8 Yb mm: 36.5...45.9

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Note inst. in remarks column

Test scheet : FIA : 07.07.92 Edition replaces : 10.12.91 Calibrating oil : ISO-4113

Injection pump : VE4/9F2100R410 Type number : 0 460 494 272

Customer-specific information Customer : FIAT-AUTO

Engine : M710

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temb.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Indicator setting Piston stroke mm: 1.0 Outlet : A

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 800 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 800

Charge press hPa: 1000 Setting value bar: 3.20...3.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 46.00...47.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 33.50...34.50

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KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 15.00...19.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 700

Del. quantity cm3/ 1000s.: 4.00...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000

J17

Del. quantity cm3/	+	Shutoff
1000s.: 30.0036.00	+	electromagnet Volt: 12
KSB/AFB	†	4th speed 1/min: 1500
valve Volt: 12 Shutoff	†	Charge press hPa: 1000
electromagnet Volt: 12	†	TD travel mm: 5.806.60
etectrollagnet vott. 12	Ť	mm: (5.506.90) KSB/AFB
Start:	Ι	valve Volt: 12
otal t.	I	Shutoff
Speed 1/min: 100	1	electromagnet Volt: 12
Del. quantity cm3/: 50.0080.00	+	5th speed 1/min: 2100
mind 1000s.: 50.00	+	Charge press. hPa: 1000
KSB/AFB	+	TD travel mm: 8.609.40
Valve Volt: 12	+	mm: (8.309.70)
Shutoff	+	KSB/AFB
electromagnet Volt: 12	1	valve Volt: 12
Load-dependent start of delivery:	T	Shutoff
Inj.—qty.dif.measurement:	Ι	electromagnet Volt: 12
any: quy tax rimeasurement.	1	Supply-pump pressure characteristic:
Speed 1/min: 800	+	coppey point pressure characteristre.
Injqty. cm3/	1	1st speed 1/min: 2100
difference 1000s.: -10.0018.00#	+	Charge press. hPa: 1000
KSB/AFB	+	Supply-pump
valve Volt: 12	+	pressure bar: 7.007.60
Shutoff	+	KSB/AFB
electromagnet Volt: 12	†	valve Volt: 12
TD-travel dif.measurement	†	Shutoff
correttore anticipo iniezione (SV) 1.Speed 1/min: 800	Ī	electromagnet Volt: 12 2nd speed   1/min: 1500
TD-travel	I	Charge press. hPa: 1000
difference mm: -0.700.90#	I	Supply-pump
KSB/AFB	1	pressure bar: 5.305.90
valve Volt: 12	+	KSB/AFB
Shutoff	+	valve Volt: 12
electromagnet Volt: 12	+	Shutoff
7	+	electromagnet Volt: 12
Inspection-pump test specifications	+	3rd speed 1/min: 800
Test specifications in parentheses	†	Charge press. hPa: 1000
Timing-device characteristic:	1	Supply-pump
mining device characteristic.	Ī	pressure bar: 3.203.80 KSB/AFB
1st speed 1/min: 500	I	valve Volt: 12
Charge press hPa: 1000	1	Shutoff
TD travel mm: 3.204.80 A	1	electromagnet Volt: 12
mm: (2.505.50)	+	
electromagnet Volt: 12	ļ.	Overlow quantity at overflow valve:
2nd speed 1/min: 800	+	
Charge press hPa: 1000	+	1st speed 1/min: 800
TD travel mm: 1.802.20	†	Charge press. hPa: 1000
mm: (1.502.50) KSB/AFB	†	KSB/AFB
valve Volt: 12	<b>†</b>	valve Volt: 12
Shutoff	Ι	Shutoff
electromagnet Volt: 12	I	electromagnet Volt: 12 Overflow: 41.7083.40
3rd speed 1/min: 1000	1	quantity cm3/10s: (41.7083.40)
Charge press hPa: 1000	1	2nd speed 1/min: 2100
TD travel mm: 2.505.50 B	T-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+	Charge press. hPa: 1000
mm: (2.505.50)	+	KSB/AFB
	+	valve Volt: 12

Shutott		1	SB/AFB		
electromagnet Volt:	12	ł v	alve	Volt:	12
Overflow :	55.60139.00	- s	hutoff		
quantity cm3/10s:	(55.60139.00)	l e	lectromagne	t Volt:	12
•	•				46.0049.00
Delivery-quant. and	breakaway chan .	_		1000s.:	
vectively qualit. and	Di Canaway Chai	٠,			
	-		th speed	1/min:	800
		r K	SB/AFB		
1nd speed 1/min:		- >	alve	Volt:	12
Charge-air pressure-	-setting -		hutoff		
point hPa:			lectromagne	+ Vol+	12
LDA-stroke mm:		. 0	at ausstit	c vocc.	35 00 37 00
KSB/AFB	5.0	, D	et. quantit	y (11157);	32.0034.00
	40	_		1000s.:	
valve Volt:	12		th speed	1/min:	600
Shutoff	-	- K	SB/AFB		
electromagnet Volt:	12 -	- v	alve	Volt:	12
Del. quantity cm3/:	40.0041.00	- s	hutoff		
10005	(38.0043.00)			+ 1/01++	12
2nd speed 1/min:		,	ol guantite	( 007/	12 33.5034.50
		- 0	er. quantit	y (1115/:	23.2024.20
Charge press. hPa:	1000 -	-		10005.:	(31.5036.50)
KSB/AFB	-	-			
valve Volt:	12	- M	ech. shutof	f:	
Shutoff	_	-			
electromagnet Volt:	12	- F	lectr. shute	off.	
Del. quantity cm3/:	0.00 7.00	_		J	
1000s.:	_	1.	المستحددة المستحد	1 /	(00
			st speed		
3rd speed 1/min:		- Do			0.003.00
Charge press. hPa:	1000 -	-	•	1000s.:	(0.003.00)
KSB/AFB	4	- K	SB/AFB		
valve Volt:	40				40
valve voil.	17	- \/:	alve	Voit.	17
	12	- Va	alve	Volt:	12
Shutoff	-	-			12
Shutoff electromagnet Volt:	12	-	alve amper set q		12
Shutoff electromagnet Volt: Del. quantity cm3/:	12 12.0020.00	- - Da	amper set q		12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000s.:	12 12.0020.00 (11.0021.00)	- - Da			12
Shutoff electromagnet Volt: Del. quantity cm3/:	12 12.0020.00 (11.0021.00)	- - Da - - L1	amper set q FG-setting:	ty.:	
Shutoff electromagnet Volt: Det. quantity cm3/: 1000S.: 4th speed 1/min:	12 12.0020.00 (11.0021.00)	- Da - Li - Sc	amper set d FG-setting: olidale con	carcas	
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa:	12 12.0020.00 (11.0021.00)	- Da - Li - Sc	amper set q FG-setting:	carcas	
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB	12 12.0020.00 (11.0021.00) 2300 1000	- Da - Ll - SG - IG	amper set q FG-setting: olidale con dle deliver	carcass	sa:
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	12 12.0020.00 (11.0021.00) 2300 1000	- Da - LI - So - Io - 1:	amper set quantities of setting: olidale con delivery	carcas	sa:
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: 7 Charge press. hPa: KSB/AFB valve Volt: Shutoff	12 12.0020.00 (11.0021.00) 2300 1000	- Da - LI - So - Io - 1s	amper set questing: olidale con dle delivery st speed SB/AFB	carcass	sa: 400
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt:	12 12.0020.00 (11.0021.00) 2300 1000	- Da - LI - So - Io - 1s	amper set questing: olidale con dle delivery st speed SB/AFB alve	carcass	sa: 400
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	12 12.0020.00 (11.0021.00) 2300 1000 12	- Da - LI - So - Io - 1s	amper set questing: olidale con dle delivery st speed SB/AFB	carcass	sa: 400
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/:	12 12.0020.00 (11.0021.00) 2300 1000 12	- Da LI - Sc - Ic - Ic - KS - KS - St - St - St - St - St - St	amper set questing: blidale con dle delivery st speed SB/AFB alve nutoff	carcass /: 1/min: Volt:	sa: 400 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00)	- Da-	amper set questing: blidale con dle delivery st speed SB/AFB alve nutoff Lectromagnet	carcass /: 1/min: Volt:	sa: 400 12 12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: 2 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: 2	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00)	- Da-	amper set quantity  FG-setting:  Didale con  dle delivery  St speed  SB/AFB  alve  nutoff  lectromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/:	sa: 400 12 12 15.0019.00
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00)	- Da - LI - So - S	amper set quantity  FG-setting:  Didale con  dle delivery  St speed  SB/AFB  alve  nutoff  lectromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/:	5a: 400 12 12 15.0019.00 (13.5020.50)
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00) 2100	- Da - LI - So - S	amper set quantity  FG-setting:  plidale con  dle delivery  st speed  SB/AFB  alve  nutoff  lectromagnet  el. quantity  ispersion	carcass /: 1/min: Volt: / cm3/: 0005.: cm3/:	5a: 400 12 12 15.0019.00 (13.5020.50) 2.5
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00) 2100	- Da	amper set quantity  FG-setting:  plidale con  dle delivery  st speed  SB/AFB  alve  nutoff  lectromagnet  el. quantity  ispersion	carcass /: 1/min: Volt: / cm3/: 000s.: cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5)
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 1000	- Da	amper set of FG-setting: olidale con dle delivery st speed SB/AFB alve nutoff lectromagnet el. quantity ispersion	carcass /: 1/min: Volt: / cm3/: 0005.: cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5)
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 1000	- Da	amper set quantity  FG-setting:  plidale con  dle delivery  st speed  SB/AFB  alve  nutoff  lectromagnet  el. quantity  ispersion	carcass /: 1/min: Volt: / cm3/: 000s.: cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5)
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 1000	- Da	amper set of FG-setting: olidale con dle delivery st speed SB/AFB alve nutoff lectromagnet el. quantity ispersion and speed SB/AFB	carcass /: 1/min: Volt: Volt: / cm3/: 0005.: cm3/: 1/min:	5a:  400  12  12  15.0019.00 (13.5020.50) 2.5 (2.5) 500
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt: Del. quantity cm3/: Del. quantity cm3/:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 1000 12	- Da	amper set of FG-setting: olidale con dle delivery st speed SB/AFB alve nutoff lectromagnet el. quantity ispersion and speed SB/AFB alve	carcass /: 1/min: Volt: / cm3/: 000s.: cm3/:	5a:  400  12  12  15.0019.00 (13.5020.50) 2.5 (2.5) 500
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 1000S.: 1000S.: 1000S.: 1000S.:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 1000 12	- Da	amper set of FG-setting: olidale con dle delivery st speed SB/AFB alve nutoff lectromagnet el. quantity ispersion and speed SB/AFB alve nutoff	carcass /: 1/min: Volt: Volt: / cm3/: 0005.: cm3/: 1/min: Volt:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 6th speed 1/min: 1	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 12 12 45.0048.00 (44.0049.00)	- Da	amper set of FG-setting: olidale condle delivery st speed SB/AFB alve nutoff lectromagnetel. quantity ispersion and speed SB/AFB alve nutoff.ectromagnetel.e	carcass /: 1/min: Volt: / cm3/: 000s.: cm3/: 1/min: Volt:	5a:  400  12  12  15.0019.00 (13.5020.50) 2.5 (2.5) 500  12
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 6th speed 1/min: Charge press. hPa: 1	12 12.0020.00 (11.0021.00) 2300 1000 12 12 30.0036.00 (29.0037.00) 2100 12 12 45.0048.00 (44.0049.00)	- Da	amper set quantity  FG-setting:  olidale con  dle delivery  st speed  SB/AFB  alve  nutoff lectromagnet  el. quantity  ispersion  nd speed  SB/AFB  alve  nutoff  electromagnet  electromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt: Charge press. hPa: 1000S.: 6th speed 1/min: 1 Charge press. hPa: 1 KSB/AFB	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500	- Da	amper set quantity  FG-setting:  olidale con  dle delivery  st speed  SB/AFB  alve  nutoff lectromagnet  el. quantity  ispersion  nd speed  SB/AFB  alve  nutoff  electromagnet  electromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/: 000s.: cm3/: 1/min: Volt:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: 6 Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 6 Shutoff electromagnet Volt: Charge press. hPa: 1000S.: 6th speed 1/min: 1 Charge press. hPa: 1 KSB/AFB valve Volt: 1	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500	- Da	amper set quantity  FG-setting:  olidale con  dle delivery  st speed  SB/AFB  alve  nutoff lectromagnet  el. quantity  ispersion  nd speed  SB/AFB  alve  nutoff  electromagnet  electromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Shutoff electromagnet Volt: Charge press. hPa: 1000S.: 6th speed 1/min: 1 Charge press. hPa: 1 KSB/AFB	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500	LI SC	amper set quantity  FG-setting:  olidale con  dle delivery  st speed  SB/AFB  alve  nutoff lectromagnet  el. quantity  ispersion  nd speed  SB/AFB  alve  nutoff  electromagnet  electromagnet  el. quantity	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 6th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff Charge press. hPa: 1000S.: 6th speed 1/min: 1000S.:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 13 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500 1000	LI SC	amper set quantity  FG-setting:  olidale con  dle delivery  st speed  SB/AFB  alve  nutoff lectromagnete  ispersion  nd speed  SB/AFB  alve  nutoff lectromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete  cetromagnete	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 6th speed 1/min: 1000S.:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 13 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500 1000	LI SO	amper set quantity amper set quantity ast speed alve autoff lectromagnet alve alve alve autoff lectromagnet alve alve alve autoff lectromagnet alve alve alve alve alve alve alve alve	carcass /: 1/min: Volt: / cm3/: 1000s.: 000s.: Volt: / cm3/: 000s.:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 6th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 4	12 12.0020.00 (11.0021.00) 2300 1000 12 12 13 20.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500 1000	LI SO	amper set quantity amper set quantity ast speed alve alve alve alve alve alve alve alve	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 6th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Charge press. hPa: 1000S.: 6th speed 1/min: Charge press. hPa: 1000S.: 6th speed 1/min: 1000S.:	12 12.0020.00 (11.0021.00) 2300 1000 12 12 12 130.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500 1000 12	LIST SELECTION OF THE PROPERTY	amper set quantity  FG-setting:  Stidale con  dle delivery  st speed  SB/AFB  alve  nutoff  lectromagnete  el. quantity  ispersion  ad speed  SB/AFB  alve  nutoff  lectromagnete  el. quantity  residual:  Rotacao  SB/AFB	carcass /: 1/min: Volt: / cm3/: 000s.: 1/min: Volt: / cm3/: 000s.: 1/min:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50 -
Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 4th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 1000S.: 5th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 6th speed 1/min: Charge press. hPa: KSB/AFB valve Volt: Shutoff electromagnet Volt: Del. quantity cm3/: 4	12 12.0020.00 (11.0021.00) 2300 1000 12 12 13 30.0036.00 (29.0037.00) 2100 1000 12 12 45.0048.00 (44.0049.00) 1500 1000 12 12 46.0048.50 1000	LIST SELECTION OF THE PROPERTY	amper set quantity amper set quantity ast speed alve alve alve alve alve alve alve alve	carcass /: 1/min: Volt: / cm3/: 1000s.: 000s.: Volt: / cm3/: 000s.:	400 12 12 15.0019.00 (13.5020.50) 2.5 (2.5) 500 12 12 6.509.50 -

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 4.00...6.00

1000s.: (3.00...7.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 800

Inj.—qty. cm3/ : 8.00...10.00'

difference 1000s.: -

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 2nd speed 1/min: 800

Inj.-qty. cm3/: 10.00..18.00# difference 1000s.: (10.00...18.00)

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 800

TD-travel : 0.70...0.90# mm: (0.70...0.90) difference

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP): 1st speed 1/min: 800

Supply pump-

: 0.10...0.30 pressure

difference bar: -

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 220

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00)

1/min: 300 2nd speed

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 32.50...47.50 1000s.: (32.50...47.50)

1/min: 100 4th speed

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 5.6...6.0 mm: 3.2...3.4 mm: 1.0...1.4 KF MS

LDA stroke mm: 6.6

mm: 37.2...39.2 Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.55 mm - Part No.

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet

Edition : 03.07.92

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R433 Type number : 0 460 494 286

Customer Part-No. :

Customer-specific information

Customer

Engine

: 1,9 L WK UD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 750 Setting value mm: 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Charge press hPa: 750 Del. quantity cm3/ 1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 37.00...43.00

1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Ini.-aty. cm3/

difference 1000S.: -7.00...11.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250	+ Charge press. hPa: 750
TD-travel	+ Shutoff
difference mm: −1.902.10*	+ electromagnet Volt: 12
Shutoff	- Overflow : 55.60139.00
electromagnet Volt: 12	+ quantity cm3/10s: (41.70152.90)
e coot i sing ice voter ie	quantity (1115) (US. (41.701)2.90)
Inspection-pump test specifications	T Delivery was and basel a surface
	† Delivery-quant. and breakaway char.:
Test specifications in parentheses	†
<del></del>	† • · · · · · · · · · · · · · · · · · ·
Timing-device characteristic:	+ 2nd speed 1/min: 2750
	+ Charge press. hPa: 750
2nd speed 1/min: 2100	+ Shutoff
Charge press hPa: 750	† electromagnet Volt: 12
TD travel mm: 8.008.60	+ Del. quantity cm3/: 0.006.00
mm: (7.509.10)	10005.: (0.006.00)
Shutoff	+ 5th speed 1/min: 2600
electromagnet Volt: 12	Charge press. hPa: 750
3rd speed 1/min: 1250	+ Shutoff
Charge press hPa: 750	
Th +movel	+ electromagnet Volt: 12
TD travel mm: 4.304.50	+ Del. quantity cm3/: 9.0013.00
mm: (3.605.20)	1000s.: (7.0015.00)
Shutoff	+ 8th speed 1/min: 2400
electromagnet Volt: 12	+ Charge press. hPa: 750
4th speed 1/min: 750	+ Shutoff
Charge press hPa: 750	+ electromagnet Volt: 12
TD travel mm: 1.502.10	- Del. quantity cm3/: 32.5042.50
mm: (1.002.60)	+ 1000s.: (31.5043.50)
Shutoff	+ 9th speed 1/min: 2100
electromagnet Volt: 12	
eteter diagree vott. 12	Charge press. hPa: 750
Complete memor management of the management of the complete of	+ Shutoff
Supply-pump pressure characteristic:	+ electromagnet Volt: 12
4 1 750	+ Del. quantity cm3/: 40.9042.90
1st speed 1/min: 750	+ 1000s.: (39.7044.10)
Charge press. hPa: 750	+ 12th speed 1/min: 1250
Supply-pump	+ Charge press. hPa: 750
pressure bar: 4.304.90	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quyntity cm3/: 49.3050.30
2nd speed 1/min: 1250	10005.: (47.6052.00)
Charge press. hPa: 750	16th speed 1/min: 600
Supply-pump	+ Charge press. hPa: -
pressure bar: 5.406.00	+ Shutoff
Shutoff	
	+ electromagnet volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 37.5040.50
3rd speed 1/min: 2100	+ 1000H.: (36.0042.00)
Charge press. hPa: 750	+ 20th speed 1/min: 700
Supply-pump	† Charge press. hPa: 750
pressure bar: 7.408.00	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 42.6045.60
•	+ 1000s.: (41.9046.30)
Overlow quantity at overflow valve:	+ 21th speed 1/min: 450
and the same state of the same state of	+ Shutoff
1st speed 1/min: 700	
Charge press. hPa: 750	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 37.0043.00
	† 1000s.: (34.5045.50)
electromagnet Volt: 12	†
Overflow : 41.7083.40	<pre>+ Mech. shutoff:</pre>
quantity cm3/10s: (27.8097.30)	†
2nd speed 1/min: 2100	+ Electr. shutoff:

SP pressdif.measurement:	1st speed	<pre>Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 TD-travel : -2.502.90# difference mm: - Shutoff electromagnet Volt: 12</pre>
St speed   1/min: 450   Shutoff   electromagnet Volt: 12   Del. quantity cm3/: 16.0021.00)   Dispersion   cm3/: 2.0   1000s.: (30.0)   1000s.: (30.0)   Electromagnet Volt: 12   3rd speed   1/min: 1250   Shutoff   electromagnet Volt: 12   Shutoff   electromagnet Volt: 12   Del. quantity cm3/: 16.0021.00)   This speed   1/min: 550   Shutoff   electromagnet Volt: 12   Del. quantity cm3/: 16.0021.00)   This speed   1/min: 550   This speed   1/min: 1250   This speed   1/min: 12	solidate con carcassa:	SP pressdif.measuremen(: pompa di mandata (FP):
Dec.   quantity cm3/:   16.0018.00   1000s.:   (13.0021.00)	Shutoff	+ Supply pump-
Dispersion cm3/: 2.0 1000S: (3.0)  High Idle:	Del. quantity cm3/: 16.0018.00	+ Shutoff
difference	Dispersion cm3/: 2.0	- 3rd speed 1/min: 1250 - Supply pump-
Shutoff electromagnet Volt: 12 pel. quantity cm3/: 16.0018.00	_	+ difference bar: -(0.801.60)
Del. quantity cm3/: 16.0018.00	Shutoff	+
Residual:  1.Rotacao 1/min: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.0055.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.0055.00  2. 2nd speed 1/min: 380 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.0051.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.0051.00 Injqty. dif.measurement:  3rd speed 1/min: 100 Shutoff Injqty. cm3/: -4.506.50' difference 1000s.: - Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet:  Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet:  Injqty. cm3/: +0.003.00# difference 1000s.: - Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet:  Injqty. cm3/: +0.003.00# Mounting and assembly dimensions:  Mounting and assembly dimensions:  KF mm: K-OT MS mm: 1.11.5 Ya mm: 37.641.6 Yb mm: 50.463.3	Del. quantity cm3/: 16.0018.00	+
1.Rotacao 1/min: 550 Shutoff electromagnet Volt: 12 Det. quantity cm3/: 7,008,00 1000s: (5.509.50)  Load-dependent start of delivery: Injqty. dif.measurement:  1st speed 1/min: 1250 Injqty. cm3/: -4.506.50' electromagnet Volt: 12 3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Shutoff electromagnet: Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 To speed 1/min: 1250 Injqty. cm3/: +0.003.00# difference 1000s.: - Shutoff electromagnet Volt: 12 The speed 1/min: 1250 Injqty. cm3/: +0.003.00# difference 1000s.: - Shutoff electromagnet Volt: 12 To speed 1/min: 1250 Injqty. cm3/: +0.003.00# difference 1000s.: - Shutoff electromagnet Volt: 12 To speed 1/min: 1250 Injqty. cm3/: +0.003.00# Mounting and assembly dimensions:  KF mm: K-OT The speed 1/min: 1250 The s		+ Shutoff
Pelectromagnet Volt: 12		+ Del. quantity cm3/: 35.0055.00
Del. quantity cm3/: 31.0051.00 Injqty.dif.measurement:  1st speed 1/min: 1250 Injqty. cm3/ : -4.506.50' difference 1000s.: - Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet: Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet: Injqty. cm3/: 10.0 Rated voltage : 10.0 Rated voltage : 12.0  Mounting and assembly dimensions:  Mounting and assembly dimensions:  TD-travel dif.measurement: Correttore anticipo iniezione (SV): The travel of the measurement: The travel of the travel of the measurement: The travel of the measurement of the me	electromagnet Volt: 12 Det. quantity cm3/: 7.008.00	+ Shutoff
Injqty.dif.measurement:  1st speed 1/min: 1250 Injqty. cm3/ : -4.506.50' difference 1000s.: - Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Electromagnet Volt: 12 3rd speed 1/min: 1250 Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet:  Cut-in min voltage : 10.0 Rated voltage : 12.0  Mounting and assembly dimensions:  Mounting and assembly dimensions:  TD-travel dif.measurement: Cut-in min voltage : 10.0 Rated voltage : 12.0  Mounting and assembly dimensions:		+ Del. quantity cm3/: 31.0051.00
1st speed 1/min: 1250 Injqty. cm3/ : -4.506.50' difference 1000s.: - Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Injqty. cm3/: -7.011.0* difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Shutoff electromagnet:  Cut-in min voltage : 10.0 Rated voltage : 12.0  Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.902.10*		+
Shutoff electromagnet Volt: 12 3rd speed	Injqty. cm $3/$ : $-4.506.50'$	+ Shutoff + electromagnet Volt: 12
<pre>3rd speed    1/min: 1250 Injqty.</pre>	Shutoff	Del. quantity cm3/: 37.0043.00 1000s.: (32.5047.50)
difference 1000s.: -(5.0013.00) Shutoff electromagnet Volt: 12 Sth speed 1/min: 1250 Injqty. cm3/: +0.003.00# difference 1000s.: - Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.902.10*  Cut-in min voltage : 10.0 Rated voltage : 12.0  Mounting and assembly dimensions:  Mounting and assembly dimensions:  KF mm: K-OT MS mm: 3.63.8  KF mm: K-OT MS mm: 37.641.6 Yb mm: 50.463.3	3rd speed 1/min: 1250	Shutoff electromagnet:
Sth speed 1/min: 1250 Injqty. cm3/: +0.003.00#  difference 1000S.: - Shutoff electromagnet Volt: 12  TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.902.10*  Mounting and assembly dimensions:  Mounting and assembly dimensions:  Mounting and assembly dimensions:  Mounting and assembly dimensions:  Mr. 3.63.8  KF mm: K-OT  MS mm: 37.641.6  Yb mm: 50.463.3	difference 1000S.: -(5.0013.00) Shutoff	† min voltage : 10.0
difference 1000s.: - Shutoff electromagnet Volt: 12  TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 TD-travel : -1.902.10*  Designation  K  mm: 3.63.8  KF  mm: K-OT  mm: 1.11.5  Ya  mm: 37.641.6  Yb  mm: 50.463.3	5th speed 1/min: 1250	+
electromagnet Volt: 12	difference 1000s.: -	+
correttore anticipo iniezione (SV):	electromagnet Volt: 12	+ K mm: 3.63.8 + KF mm: K-OT
TD-travel : -1.902.10*	TD-travel dif.measurement: correttore anticipo iniezione (SV):	+ Ya mm: 37.641.6
altrerence mm: - + Remarks: + :	TD-travel : -1.902.10*	+ Yb mm: 50.463.3
	aitterence mm; —	+ Remarks:

Note inst. in remarks column

Test scheet : VWW : 03.07.92 Edition : ISO-4113 Calibrating oil

Injection pump : VE4/9F2300R479 Type number : 0 460 494 321

Customer Part-No. :

Customer-specific information

Customer : VW

Engine : 1,9 UD f. B4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 750

mm: 4.30...4.50 Setting value

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750 Del. quantity cm3/ 1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.51000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550 Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Speed Charge press hPa: 750 Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 37.00...43.00 mind 1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -7.00...11.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250 Charge press. hPa: 750 TD-travel Shutoff difference mm: -1.90...2.10# electromagnet Volt: 12 Shutoff : 55.60...139.00 Overflow electromagnet Volt: 12 quantity cm3/10s: (41.70...152.90) Inspection-pump test specifications Delivery-quant. and breakaway char .: Test specifications in parentheses Timing-device characteristic: 2nd speed 1/min: 2750 Charge press. hPa: 750 Shutoff 1/min: 2100 hPa: 750 2nd speed Charge press electromagnet Volt: 12 TD travel Del. quantity cm3/: 0.00...6.00 mm: 8.00...8.60 mm: (7.50...9.10) 1000s.: (0.00...6.00) Shutoff 5th speed 1/min: 2600 Charge press. hPa: 750 Shutoff electromagnet Volt: 12 1/min: 1250 3rd speed Charge press hPa: 750 electromagnet Volt: 12 Del. quantity cm3/: 9.00...13.00 1000s.: (7.00...15.00) 8th speed 1/min: 2400 TD travel mm: 4.30...4.50 mm: (3.60...5.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press. hPa: 750 Shutoff Charge press hPa: 750 electromagnet Volt: 12 Del. quantity cm3/: 32.50...42.50 1000s.: (31.50...43.50) TD travel mm: 1.50...2.10 mm: (1.00...2.60) Shutoff 1/min: 2100 9th speed electromagnet Volt: 12 Charge press. hPa: 750 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 40.90...42.90
1000S.: (39.70...44.10)
12th speed 1/min: 1250 Supply-pump pressure characteristic: 1st speed 1/min: 750 Charge press. hPa: 750 Supply-pump Charge press. hPa: 750 pressure bar: 4.30...4.90 Shutoff Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 49.30...50.30 electromagnet Volt: 12 2nd speed 1/min: 1250 1000s.: (47.60...52.00) Charge press. hPa: 750 16th speed 1/min: 600 Supply-pump Shutoff pressure bar: 5.40...6.00 Shutoff electromagnet Volt: 12 1/min: 2100 3rd speed Charge press. hPa: 750 Charge press. hPa: 750 Supply-pump Shutoff pressure bar: 7.40...8.00 electromagnet Volt: 12 Shutoff Del. quantity cm3/: 42.60...45.60 1000s.: (41.10...47.10) electromagnet Volt: 12 1/min: 450 21th speed Overlow quantity at overflow valve: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (34.50...45.50) 1/min: 700 1st speed Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Mech. shutoff: : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) 1/min: 2100 quantity Electr. shutoff: 2nd speed

1/min: 450 1st speed Shutoff Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1900s.: (0.00...3.00) TD-travel dif.measurement: Idle delivery: TD-travel : -1.90...2.10# Damper set gty.: difference Shutoff 1/min: 1000 2nd speed electromagnet Volt: 12 Shutoff 1/min: 1250 3rd speed electromagnet Volt: 12 : -2.50...2.90' TD-travel Del. quantity cm3/: 17.00...19.00 difference mm: -(2.10...3.30)1000s.: (14.00...22.00) Shutoff electromagnet Volt: 12 LFG-setting: solidale con carcassa: Idle delivery: SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 1/min: 450 1st speed Supply pump-Shutoff : -0.10...0.30\* pressure electromagnet Volt: 12 Del. quantity cm3/: 16.00...18.00 difference bar: -Shutoff 1000S.: (13.00...21.00) cm3/: 2.0 electromagnet Volt: 12 3rd speed 1/min: 1250 Dispersion 1000s.: (3.0) Supply pump-: -1.00...1.40' pressure High Idle: difference bar: -(0.80...1.60)Shutoff 1/mi: 550 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Part-load del.at 3rd inj.-qty. Del. quantity cm3/: 16.00...18.00 terza fermo della portata 1000s.: (13.00...21.00) stop (EGR set) scarico) (ARF) Residual: gaz d'échappement-ARF) Spacing nm: 12.0 1/min: 550 1.Rotacao Shutoff 1/min: 1000 1st speed electromagnet Volt: 12 Del. quantity cm3/: 7.00...8.00 Charge press. hPa: 750 Shutoff 1000s.: (5.50...9.50) electromagnet Volt: 12 Del. quantity cm3/: 27.00...29.00 Load-dependent start of delivery: 1000s.: (24.00...32.00) Inj.-qty.dif.measurement: Automatic starting fuel delivery: 1st speed 1/min: 1250 Inj.-qty. cm3/ : -4.50...6.50\* difference 1000s.: -1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 1000s.: (35.00...55.00) cm3/: -7.0...11.0# Inj.-qty. difference 1000s.: -(5.00...13.00) 2nd speed 1/min: 380 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.00...51.00 1000S.: (31.00...51.00) electromagnet Volt: 12 5th speed 1/min: 1250 cm3/: +0.00...3.00' Inj.-qty. difference 1000s.: -3rd speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 1000s.: (32.50...47.50)

## Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0 min voltage

## Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: K-OT mm: 1.0...1.4 mm: 37.6...41.6 mm: 50.1...63.3 MS Ya Yb

Remarks:

Overflow restriction 0.55 mm - Part No. ..303 :

Note inst. in remarks column

Test scheet : VWW

: 06.07.92 Edition Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R479-4 Type number : 0 460 494 322

Customer Part-No. :

Customer-specific information

Customer

: VW

: 1,9 UD f. B4/AU Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Injection pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1250 Charge press. hPa: 750

Setting value mm: 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 49.30...50.30

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5

1000s.: (3.0)

Low-idle speed regulation

1/min: 450 Speed Del. quantity cm3/

1000s.: 15.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Speed Charge press hPa: 750

Del. quantity cm3/

1000s.: 9.00...13.00

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 37.00...43.00 mind 1000S.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed Charge press hPa: 12

cm3/Inj.-qty.

difference 1000s.: -7.00...11.00\*

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

K01

TD-travel	†	Chutoff	750
difference mm: -1.9	on 2.10+ I	Shutoff electromagnet Volt:	12
Shutoff	I	Overflow :	55.60139.00
electromagnet Volt: 12	I	quantity cm3/10s:	
etetti ollagilet vott. 12	I	quarterly chish tos.	(41.70156.70
Inspection-pump test spe	ecifications	Delivery-quant. and	breakaway char.
Test specifications in p		beervery squarer and	an cananay char.
	+		
Timing-device characteri	istic:	2nd speed 1/min:	2750
-	<del> </del>	Charge press. hPa:	
2nd speed 1/min: 2100	) <del> </del>	Shutoff	
Charge press hPa: 750	+	electromagnet Volt:	
TD travel mm: 8.00		Del. quantity cm3/:	0.006.00
	609.00)	1000s.:	(0.006.00)
Shutoff	+	5th speed 1/min:	2600
electromagnet Volt: 12	+	Charge press. hPa:	750
3rd speed 1/min: 1250	) +	Shutoff	
Charge press hPa: 750	+	electromagnet Volt:	12
TD travel mm: 4.30	)4.50 <del> </del>	Del. quantity cm3/:	9.0013.00
mm: (3.7	?05.10) <del> </del>	1000s.:	(7.0015.00)
Shutoff	+	8th speed 1/min:	2400
electromagnet Volt: 12	+	Charge press. hPa:	750
4th speed 1/min: 750	+	Shutoff	
Charge press hPa: 750	+	electromagnet Volt:	12
TD travel mm: 1.50	)2.10 <del> </del>	Del. quantity cm3/:	32.5042.50
mm: (1.1	102.50)		(31.5043.50)
Shutoff	+	9th speed 1/min:	2100
electromagnet Volt: 12	+	Charge press. hPa:	750
	+	Shutoff	
Supply-pump pressure cha	aracteristic: 🕂	electromagnet Volt:	12
	+	Del. quantity cm3/:	40.9042.90
1st speed 1/min: 750	+		(39.7044.10)
Charge press. hPa: 750	+	12th speed 1/min:	
Snibb(A-bnub	+	Charge press. hPa:	750
pressure bar: 4.30	]4.90	Shutoff	
Shutoff	+	electromagnet Volt:	12
electromagnet Volt: 12	. †	Del. quyntity cm3/:	49.3050.30
2nd speed 1/min: 1250	) +		(47.6052.00)
Charge press. hPa: 750	+	16th speed 1/min:	600
Supply-pump	+	Shutoff	
pressure bar: 5.40	J6.00 <del> -</del>	electromagnet volt:	12
Shutoff	†	Del. quantity cm3/:	
electromagnet Volt: 12	·		(36.0042.00)
3rd speed 1/min: 2100	†	20th speed 1/min:	
Charge press. hPa: 750	†	Charge press. hPa:	750
Supply-pump	<del>+</del>	Shutoff	40
pressure bar: 7.40	18.00 +	electromagnet Volt:	
Shutoff	†	Del. quantity cm3/:	
electromagnet Volt: 12	†		(41.1047.10)
O	· • · · · · · · · · · · · · · · · · · ·	21th speed 1/min:	450
Overlow quantity at over	Tlow valve:	Shutoff	40
1at annual 1/ 700	†	electromagnet Volt:	77 00 /7 00
1st speed 1/min: 700	†	Del. quantity cm3/:	
Charge press. hPa: 750	†	TUUUS.:	(34.5045.50)
Shutoff	†	Manh shows ff.	
electromagnet Volt: 12	n 87 / n	Mech. shutoff:	
	083.40	Floots shot-ff.	
quantity cm3/10s: (27.	007(.30)	Electr. shutoff:	
2nd speed 1/min: 2100	†		

1st speed	TD-travel : -1.902.10* Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250
Idle delivery:	TD-travel : -2.502.90# difference mm: -(2.303.10) Shutoff
Damper set qty.:	electromagnet Volt: 12
2nd speed 1/min: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.0019.00 1000s.: (14.0022.03)	SP pressdif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump- pressure : -0.100.30'
LFG-setting: solidale con carcassa: Idle delivery:	difference bar: - Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Supply pump-
1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.0018.00	pressure : -1.001.40# difference bar: -(0.801.60) Shutoff electromagnet Volt: 12
1000s.: (13.0021.00) Dispersion cm3/: 2.0 1000s.: (3.0)	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set)
High Idle:	- scarico) (ARF) - gaz d'échappement-ARF)
1st speed 1/mi: 500 Shutoff	Spacing mm: 12.0
electromagnet Volt: 12 Del. quantity cm3/: 16.0018.00 1000S.: (13.0021.00)	1st speed 1/min: 1000 Charge press. hPa: 750 Shutoff
Residual:	electromagnet Volt: 12 Del. quantity cm3/: 27.0029.00 1000s.: (24.0032.00)
1.Rotacao 1/min: 550 Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 12 Del. quantity cm3/: 7.008.00 1000S.: (5.509.50)	1st speed 1/min: 180 Shutoff
Load—dependent start of delivery: Inj.—qty.dif.measurement:	electromagnet Volt: 12  Del. quantity cm3/: 35.0055.00  1000s.: (35.0055.00)
1st speed 1/min: 1250 Injqty. cm3/: -4.506.50' difference 1000S.: - Shutoff electromagnet Volt: 12	2nd speed 1/min: 380 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.0051.00 1000S.: (31.0051.00)
5th speed 1/min: 1250 Injqty. cm3/: +0.003.00# difference 1000S.: -	3rd speed 1/min: 100 Shutoff
Shutoff electromagnet Volt: 12	+ electromagnet Volt: 12 - Del. quantity cm3/: 37.0043.00
TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250	1000s.: (32.5047.50)  Shutoff electromagnet:

Cut-in

min voltage : 12.0 Rated voltage : 10.0

## Mounting and assembly dimensions:

Designation

K mm: 1.6...1.8 kF mm: K-OT mm: 1.0...1.4 Ya mm: 37.6...41.6 Yb mm: 50.4...63.3

## Remarks:

Overflow restriction 0.55 mm - Part No. ..303

Note inst. in remarks column

Test scheet : OPE

Edition : 02.07.92 Calibrating oil : ISO-4113

Injection pump : VE4/9F2500R341 : 9 460 620 003 Type number

Customer-specific information Customer : ISUZU

Engine : 4EC1-BADT

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically : 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 700 Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 700

Setting value bar: 3.80...4.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Speed Charge press. hPa: 700

Del. quantity cm3/ 1000s.: 46.90...47.90

Shutoff

electromagnet Volt: 12 Dispersion cm3/: -1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 600

Del. quantity cm3/

1000s.: 33.80...37.80

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 8.50...12.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 425 hPa: 700 Charge press

Del. quantity cm3/ 1000s.: 19.60...25.60

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 38.00...70.00 mind 1000s.: 38.00

mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250 Charge press hPa: 700

Inj.-qty. cm3/

difference 1000s.: 16.00...24.00

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1250

Charge press hPa: 700

TD-travel +	2nd speed 1/min: 2500
difference mm: 1.401.60	Charge press. hPa: 700
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
+	Overflow : 94.50139.00
Inspection-pump test specifications +	quantity cm3/10s: (94.50139.00)
Test specifications in parentheses +	•
<del>-</del>	Delivery-quant. and breakaway char.:
Timing-device characteristic:	•
1	
1st speed 1/min: 620 +	1nd speed 1/min: 1000
Charge press hPa: 700 +	Charge-air pressure-setting
TD travel mm: 0.301.10	point hPa: 340
mm: (0.001.40)	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1250 +	Del. quantity cm3/: 43.3044.30
Charge press hPa: 700 +	1000s.: (41.3046.30)
TD travel mm: 2.803.20	2nd speed 1/min: 2950
mm: $(2.303.76)$	Charge press. hPa: 700
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 2000	Del. quantity cm3/: 0.0015.00
Charge press hPa: 700	10008.: (0.0015.00)
TD travel mm: 5.606.40	3rd speed 1/min: 2750
mm: (5.306.70)	Charge press. hPa: 700
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
4th speed 1/min: 2250	Del. quantity cm3/: 19.6025.60
Charge press hPa: 700	10005:: (18.6026.60)
TD travel mm: 6.607.40	
mm: (6.307.70)	4th speed 1/min: 2600
mm: (0.30/./U)	Charge press. hPa: 700
Complete action and a second an	Shutoff
Supply-pump pressure characteristic:	electromagnet Volt: 12
4	Del. quantity cm3/: 26.1034.10
1st speed 1/min: 620	1000s.: (26.1034.10)
Charge press. hPa: 700	5th speed 1/min: 2500
Supply-pump	Charge press. hPa: 700
pressure bar: 2.202.80	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 34.1037.10
2nd speed 1/min: 1250	1000s.: (33.3037.90)
Charge press. hPa: 700	6th speed 1/min: 2300
Supply-pump +	Charge press. hPa: 700
pressure bar: 2.804.40	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 44.5047.50
3rd speed 1/min: 2250 +	1000s.: (43.8048.20)
Charge press. hPa: 700 +	7th speed
Supply-pump +	Charge press. hPa: 700
pressure bar: 6.206.80 +	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 44.3047.30
1	10005.: (43.8047.80)
Overlow quantity at overflow valve:	8th speed 1/min: 1500
and the special of the second	Charge press. hPa: 700
1st speed 1/min: 600	
	Shutoff
	Shutoff electromagnet Volt: 12
Shutoff	electromagnet Volt: 12
Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 46.9047.90
Shutoff	electromagnet Volt: 12

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.60...38.60 1000s.: (34.10...39.10) 1/min: 1300 10th speed Charge press. hPa: 700 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 46.10...49.10 1000s.: (45.60...49.60) 11th speed 1/min: 600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.80...37.80 1000s.: (32.80...38.80) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1/min: 425 1st speed

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 1000s.: (6.50...14.50) Dispersion cm3/: 2.5 1000s.: (3.0) 1/min: 550 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

difference 1000s.: (16.00...24.00)

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: 700

TD-travel : 1.40...1.60 difference mm: (1.40...1.60)

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 42.50...57.50 1000s.: (42.50...57.50)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 38.00...70.00

1000s.: (38.00...70.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut (46)

Overflow restriction 0.75 mm - Part No. ..343,...344

Note inst. in remarks column

: OPE Test scheet Edition : 07.07.92 : 18.07.89 replaces Calibrating oil : ISO-4113

Injection pump : VE4/10F2300R365 Type number : 9 460 620 004

Customer-specific information Customer : ISUZU

Engine : 4 EE1-TC

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 343

Calibrating-oil return temp.

with thermometer : 40...48 Electronically ; 42...50

Inlet press., bar: 0.35

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 2.90...3.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000 Setting value bar: 3.90...4.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1000 Del. quantity cm3/

1000s.: 52.50...53.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: -1000S.: (2.5)

Low-idle speed regulation

Speed 1/min: 415 Del. quantity cm3/

1000s.: 9.50...13.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2600 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 18.40...24.40

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 44.00...76.00 mind 1000s.: 44.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600 Charge press hPa: 1000

TD travel mm: 0.30...1.10 mm: (0.00...1.40)

electromagnet Volt: 12 1/min: 1250 2nd speed Charge press hPa: 1000

TD travel mm: 2.90...3.30 mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 2000 Charge press hPa: 1000

TD travel mm: 5.80...6.60

mm: (5.50...6.90)

Shutoff	+ Del. quantity cm3/: 18.4024.40
electromagnet Volt: 12	1000s.: (16.9025.90)
4th speed 1/min: 2250	+ 4th speed 1/min: 2400
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 6.807.60	+ Shutoff
mm: (6.507.90)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 41.0049.00
electromagnet Volt: 12	+ 1000s.: (40.0050.00)
-	+ 5th speed 1/min: 2300
Supply-pump pressure characteristic:	+ Charge press. hPa: 1000
	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 12
Charge press. hPa: 1000	Del. quantity cm3/: 49.5052.50
Supply-pump	1000s.: (48.7053.30)
pressure bar: 2.102.70	+ 6th speed 1/min: 2200
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1250	- electromagnet Volt: 12
Charge press. hPa: 1000	Del. quantity cm3/: 50.0053.00
Supply-pump	10008.: (49.2053.80)
pressure bar: 3.904.50	7th speed 1/min: 1250
Shutoff	+ Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
3rd speed 1/min: 2250	Del. quantity cm3/: 31.7035.70
Charge press. hPa: 1000	10008: (31.2036.20)
Supply-pump	8th speed 1/min: 1250
pressure bar: 6.507.10	Charge press. hPa: 1000
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
etectionagnet vott. 12	Del. quantity cm3/: 52.5053.50
Overlow quantity at overflow valve:	1000s.: (50.7055.30)
over tow quantity at over flow valve.	9th speed 1/min: 550
2nd spood 1/min 1250	+ Shutoff
2nd speed 1/min: 1250	i e
Charge press. hPa: 1000 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 34.7038.70
	1000S.: (33.7039.70)
electromagnet Volt: 12 Overflow: 83.40127.80	10005.: (35.7039.70)
quantity cm3/10s: (83.40127.80)	Manh shirtseff.
quantity (m5/10s: (65.40127.60)	Mech. shutoff:
Dold come as such and broaden as about	The state of the s
Delivery-quant. and breakaway char.:	+ Electr. shutoff:
	124 20224 1/2022 1/15
1-d 1/ 1000	1st speed 1/min: 415
1nd speed 1/min: 1000	Del. quantity cm3/: 0.003.00
Charge-air pressure-setting	† 1000s.: (0.003.00)
point hPa: 410	†
Shutoff	+ Idle delivery:
electromagnet Volt: 12	1-
Del. quantity cm3/: 47.8048.80	1st speed 1/min: 415
1000\$.: (45.8050.80)	+ Shutoff
2nd speed 1/min: 2750	+ electromagnet Volt: 12
Charge press. hPa: 1000	+ Del. quantity cm3/: 9.5013.50
Shutoff 12	† 1000s.: (7.5015.50)
electromagnet Volt: 12	+ Dispersion cm3/: 2.5
Del. quantity cm3/: 0.005.00	† 1000s.: (3.0)
1000\$.: (0.005.00)	+ 2nd speed 1/min: 550
3rd speed 1/min: 2600	+ Shutoff
Charge press. hPa: 1000	+ electromagnet Volt: 12
Shutoff 12	- Del. quantity cm3/: 0.005.00
electromagnet Volt: 12	† 1000s.: (0.005.00)
	+

Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: 1000 Inj.-qty. cm3/: 16.00...24.00 difference 1000S.: (16.00...24.00) Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1/min: 1250 1st speed Charge press. hPa: 1000 TD-travel : 0.70...0.90 difference mm: (0.60...1.00) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...52.50 1000s.: (37.50...52.50) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 44.00...76.00 1000s.: (44.00...76.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: mm: 0.8...1.0 Overflow restriction 0.75 mm - Part No. ..343,..344

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 466 099 Injection pump EP type number : 0 410 476 976 Governor 41 : 0 420 232 572 Soverner no. Customer-spec. information Customer : KHD Engine : F6L912 1st version kW : 74.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600

Pump designation : PES6A75D410/3RS1360 Governor design: RSV325...1150A8C494-(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 1.90...2.00 : (1.85...2.05) K11

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rom: 1150 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 5.1...5.2 100 s: (5.0...5.4) Spread cm3 : 0.2100 s: (0.4) 2nd speed rpm : 325.0Rack travel in mm: 7.1...7.3 Del.quantity cm3/: 1.0...1.6 100 s: (0.8...1.7) cm3 : 0.2Spread 100 s: (0.3) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.25FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1150 : 51.5...52.5 Speed Del.quantity 1000 : (50.0...54.0) : 2.50 Spread cm3 1000 : (4.00) RATED SPEED 1st version Control lever position degrees: 102...110 Testina: 1st rack travel in: 10.10 rpm : 1190...1200 Speed 2nd rack travel in: 4.00 rpm : 1225...1255 Speed 3rd rack travel in: 4.00

Speed rpm : 1235...1265 4th rack travel in: 1350 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 67...75 Setting point w/out bumper spring rpm : 325 Speed Rack travel in mm: 6.7 Testina: Speed rpa : 100 Minimum rack trave: 19.50 Speed rpm : 325 Rack travel in mm : 7.10...7.30 Rack travel in mm : 2.00 Speed COM : 435...495 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 11.10...11.20 od speed rpm : 750 2nd speed Rack travel in m: 12.30...12.50 rpm : 950 3rd speed Rack travel in m: 11.60...11.80 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/ : 55.0...57.0 1000 s: (53.0...59.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.10 Speed rpm : 1190...1200 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0)

Rack travel in mm : 19.50...21.00

Remarks:

**APPLICATION** 

Installation 2300

BOSCH INJ. PUMP TEST SPECIFICATIONS : 1-6-5-4-3-2 Firing order Note remarks Test sheet : KHD Phasing : 0-75-120-195-240-315 Edition : 31.07.92 Replaces Tolerance + - : 0.50 (0.75) Test oil : ISO-4113 Time to cyl. no. : 1 Combination no. : 0 400 646 271AA BASIC SETTING Injection pump Pump designation : PE6A95D410LS2621 1st speed rpm: 1250 EP type number : 0 410 696 982 Governor Rack travel in mm : 9.20...9.30 Governor design. : RQV300...1250AB1195L Governer no. : 0 420 212 172 Del.quantity cm3/: 8.1...8.3 Customer-spec. information 100 s: (7.9...8.5) Customer : KHD Spread cm3 : 0.3Engine : F6L413F 100 s: (0.6) 1st version kW : 120.0 Rated speed : 2500 rpm : 300.02nd speed Rack travel in mm: 6.4...6.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9) Test oil cm3 : 0.3 Spread inlet temp. "C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Test nozzle holder : 1.20...1.30 travel mm assembly : 0 681 343 009 2nd speed rpm : 500 travel mm 2.60...2.90 Opening 3rd speed rpm : 1000 pressure, bar : 172...175 : 5.40...5.60 travel mm rpm : 1300 4th speed : 7.70...7.80 travel mm Test lines : 1 680 750 014 5th speed rpm : 1380 travel mm : 8.50...8.80 Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x2.00x600 Control-lever position Degree: -1 (A) Injection pump setting values rpm : 1250 Speed Insp. values in parentheses Rack travel in mm : 15.20...17.80 Set equal delivery quant. per values \_\_\_ FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 rpm : 1250 Speed : 81.0...83.0 Del.quantity Prestroke mm : 2.00...2.10 1000 : (79.0...85.0) : (1.95...2.15) Spread cm3 : 3.50

1000 : (6.00)

Rack travel in mm : 9.00...12.00

RATED SPEED

1st version Control lever

position degrees: 113...121

Testing:

1st rack travel in: 8.20

rpm : 1290...1300 Speed

2nd rack travel in: 4.50

Speed rpm : 1345...1375 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 80...88

Testing:

rpm : 100 Speed

Minimum rack trave: 8.00

Speed rpm: 300

Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 375...485

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.20...9.30

2nd speed npa : 650

Rack travel in m: 9.70...9.80

3rd speed rpm : 850

Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 76.5...79.5

1000 s: (74.0...82.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

K14

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 14.40...14.80

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 9,6 i 2 Edition : 26.06.92 Replaces : 03.90 Test oil : ISO-4113 Combination no. : 0 400 646 275 Injection pump Pump designation : PE6A95D410L32621 EP type number : 0 410 696 982 Governor Governor design. : RQ300/1250AB1148-1L : 0 420 200 104 Governer no. Customer-spec. information Customer : KHD Engine : F6L413F : 141.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27

Firing order : 1-6-5-4-3-2 Phasing : 0-75-120-195-240-315 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 10.60...10.70 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.8...1.4 100 s: (0.5...1.6) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 600 Rack travel in mm: 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Del.quantity : 96.5...98.5 1000 : (94.5...100.5) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Setting point: rpm Rack travel in mm: 20.0 Testing: 1st rack travel in: 9.60 rpm : 1295...1310 Speed 2nd rack travel in: 4.00 : 1325...1355 Speed rpm

Prestroke mm

: 2.00...2.10

Rack travel in mm : 9.00...12.00

: (1.95...2.15)

LOW IDLE 1 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 7.90 Speed rpm : 300Rack travel in mm : 6.40...6.60 Rack travel in mm: 2.00 rpm : 340...380 Speed TORQUE CONTROL Dimension a mm : 0.17 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.60...10.70 rpm : 600 2nd speed Rack travel in m: 11.10...11.20 3rd speed rpm : 915 Rack travel in m: 11.10...11.20 4th speed rpm : 980 Rack travel in m: 10.60...10.80 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/: 95.0...98.0 1000 s: (92.5...100.5) RACK STOP ADJUSTMENT Speed rpm : 650 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 rpm : 1295...1310 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 15.30...15.60 Remarks: : KLEOPATRA

Note remarks

: KHD Test sheet

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 646 275AA

Injection pump

Pump designation : PE6A95D41OLS2621 EP type number : 0 410 696 982

Governor

Governor design. : RQ300/1250AB1148-1L

Governer no. : 0 420 200 104

Customer-spec. information

Customer : KHD

Engine : F6L413F

: 136.0 1st version kW

: 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Phasing

Firing order

: 0-75-120-195-240-315

: 1-6- 5- 4- 3- 2

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.1...1.7 100 s: (0.8...1.9)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1250

: 93.0...95.0 Del.quantity

1000 : (91.0...97.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm

: 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 9.10

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

Speed man : 1330...1360

LOW IDLE 1 Setting point w/out bumper spring Speed rom : 300 Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300 Rack travel in mm : 6.40...6.60 Rack travel in mm : 2.00 Speed rpm : 340...380 TORQUE CONTROL Dimension a mm : 0.17 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.10...10.20 2nd speed rpm : 650 Rack travel in m: 10.60...10.70 rpm : 915 3rd speed Rack travel in m: 10.30...10.50 4th speed rpm : 980 Rack travel in m: 10.00...10.30 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 92.0...95.0 1000 s: (89.5...97.5) RACK STOP ADJUSTMENT Speed rpm : 650 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 Speed rpm : 1295...1310 STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 15.30...15.60

Remarks:

: KLEOPATRA

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 646 275AB

Injection pump

Pump designation : PE6A95D41OLS2621 EP type number : 0 410 696 982

Governor

Governor design. : RQ300/1250AB1148-1L

Governer no. : 0 420 200 104

Customer-spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 122.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Open in a

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

: 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

firing order

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.1...1.7

100 s: (0.8...1.9) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 83.0...85.0 Del.quantity

1000 : (81.0...87.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 8.30

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

rpm : 1325...1355 Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.40...6.60

Rack travel in mm: 2.00

rpm : 340...380 Speed

TORQUE CONTROL

Dimension a mm : 0.17

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 9,30...9.40

rpm : 650 2nd speed

Rack travel in m: 9.80...9.90

rpm : 915 3rd speed

Rack travel in m: 9.50...9.70

4th speed rpm : 980

Rack travel in m: 9.20...9.50

START CUT-OUT

1/min: 220 (240) Speed

RACK STOP ADJUSTMENT

Speed rpm : 650

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.30

rpm : 1295...1310 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm: 15.30...15.60

Remarks:

: KLEOPATRA

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD 15,8 n1 Edition : 7.8.92 : 19.10.90 Replaces Test oil : ISO-4113 Combination no. : 0 400 649 219 Injection bump Pump designation : PE10A950610/4LS2589 EP type number : 0 410 699 994 Governor Governor design: RQV300...1150AB1047D : 0 420 214 242 Governer no. Customer—spec. information Customer : KHD Engine : F10L413 FW 1st version kW : 170.0 Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 000 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 : 1- 10- 9- 4- 3- 6-Firing order 5- 8- 7- 2 Phasing : 0-27-72-99-144-171-216-243-288-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no.: : 1 BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 9.60...9.70 Del.quantity cm3/: 7.5...7.7 100 s: (7.3...7.9) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Spread cm3 : 0.5100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.10...1.60 travel mm 2nd speed rpm : 390 : 2.20...2.60 travel mm 3rd speed rpm : 1195 travel mm : 8.70...9.10 4th speed rpm : 1245 : 9.40...9.80 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1170 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Del.quantity : 75.0...77.0 1000 : (73.0...79.0) Spread cm3 : 3.50 1000 : (6.00)

Prestroke mm

Test pressure, bar: 25...27

: 1.50...1.60

: (1.45...1.65)

RATED SPEED

1st version

Control Lever

position degrees: 117...125

Testing:

1st rack travel in: 8.60

rom : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1230...1260

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 67...75

Testing:

Speed : 200 man Minimum rack trave: 8.40

: 300 Speed rpm

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 300...420 Speed

TORQUE CONTROL

Dimension a mm : 1.00

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.60...9.70

rpm : 500 2nd speed

Rack travel in m: 10.60...10.70

3rd speed rpm : 880

Rack travel in m: 10.30...10.50

4th speed rpm : 990

Rack travel in m: 9.90...10.10

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 800 rom

Del.quantity cm3/: 80.5...83.5

1000 s: (78.0...86.0)

: 100 rpm

Del.quantity cm3/: 65.0...70.0 1000 s: (62.5...72.5)

RACK STOP ADJUSTMENT

Speed rom : 500 **BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.60

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 15.40...15.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

When accelerating from engine speed "O", no voltage in starting solenoid.

2. Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

**APPLICATION** 

Below-ground operation

Note remarks

Test sheet : KHD

Edition : 24.07.92

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AA

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

L

Governer no. : 0 420 232 310

Customer-spec. information

Customer : H

Engine : F6L413F

1st version kW : 134.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: 2.00...2.10 : (1.95...2.15) Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1325

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 9.2...9.4

100 s: (9.0...9.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm: 800

Governor spring pre-tension

Rack travel in mm : 0.30...1.70

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1325

Del.quantity : 92.0...94.0

1000 : (90.0...96.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Setting point:

Speed rpm : 800

Rack travel in mm: 1.0

Testing: 1st rack travel in: 8.80 rpm : 1365...1375 Speed 2nd rack travel in: 4.00 Speed rpm : 1390...1420 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rpm : 520...580 rpm : 700 Spead Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1325 Rack travel in m: 9.80...9.90 2nd speed rpm : 650 Rack travel in m: 9.80...10.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.80 Speed rpm : 1365...1375 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 14.00...14.40 LOW IDLE Speed rpm : 300 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) cm3 : 3.00Spread 1000 s: (5.00) Remarks:

Note remarks

Test sheet : KHD Edition : 24.07.92

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AB

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : D 41D 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no. : 0 420 232 310

Customer-spec. information

Customer : KHD

Engine : F6L413F

1st version kW : 141.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1250

Del.quantity : 96.5...98.5 1000 : (94.5...100.5)

cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 9.40

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1310...1340 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 520...580 rpm : 700 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 10.40...10.50 2nd speed rpm : 650 Rack travel in m: 10.90...11.00 3rd speed rpm : 850 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 95.0...98.0 1000 s: (92.5...100.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 Speed rpm : 1290...1300 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

rpm Rack travel in mm : 5.90...6.10 Del.quantity\_cm3/ : 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.001000 s: (5.00)

Remarks:

LOW IDLE

Speed

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 149AC

Injection : To

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information

Customer

: KHD

Engine

: F6L413F

1st version kW : 134.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test Lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 10.10...10.20

Del.quantity cm3/: 9.2...9.4

100 s: (9.0...9.6)

Spread

Spread

Speed

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 Del.quantity

: 92.0...94.0

1000 : (90.0...96.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.10

Speed rpm : 1290...1300 2nd rack travel in: 4.00

rpm : 1305...1335 Speed 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00

Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00
Speed rpm: 520...580 Speed וחכרו : 700

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

rom : 1250 1st speed

Rack travel in m: 10.10...10.20

2nd speed rpm : 650

Rack travel in m: 10.60...10.70

3rd speed rpm : 850

Rack travel in m: 10.20...10.40

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 90.5...93.5

1000 s: (88.0...96.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 9.10

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40

LOW IDLE

rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Note remarks

Test sheet

: KHD Edition : 24.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AD

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8c1002

: 0 420 232 310 Governer no.

Customer-spec. information

: KHD Customer

: F6L413F Engine

1st version kW : 130.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom : 1250

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 89.0...91.0 Del.quantity 1000 : (87.0...93.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 8.80

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpm : 1305...1335 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

rpm : 520...580 Speed

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.80...9.90

2nd speed rpm : 650

Rack travel in m: 10.30...10.40 3rd speed rpm : 850

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Spread cm3 : 3.001000 s: (5.00)

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Remarks:

**L05** 

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AE

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8c1002

Governer no.

: 0 420 232 310

Customer-spec. information

Customer

: KHD

Engine

: F6L413F

1st version

: 127.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

kW

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Phasing : 0-75-120-195-240-315

Rack travel in mm : 9.00...12.00

Tolerance + - °

Firing order

: 0.50 (0.75)

: 1-6-5-4-3-2

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.60...9.70

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread

cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x T: ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

rpm : 1250

Del.quantity

: 87.0...89.0

1000 : (85.0...91.0)

Spread

cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.60

Speed

rpm : 1290...1300

2nd rack travel in: 4.00

L03

rpm : 1300...1330 Speed

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 Speed \_ nom : 520...580 rpm : 700 Speed

Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250 Rack travel in m: 9.60...9.70

2nd speed rpm : 650 Rack travel in m: 10.10...10.20

3rd speed rpm : 850

Rack travel in m: 9.70...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.60

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40

LOW IDLE

rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0 1000 s: (6.5...17.5)

cm3 : 3.00 1000 s: (5.00) Spread

Remarks:

L<sub>04</sub>

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 149AF

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

: 123.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall-thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-6-5-4-3-2

Fhasing

: 0-75-120-195-240-315

Tolerande + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.40...9.50

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Speed Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250

Del.quantity

: 84.0...86.0

1000 : (82.0...88.0) : 3.50

Spread

cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

Speed

1st rack travel in: 8.40

rpm : 1290...1300

2nd rack travel in: 4.00

rpm : 1300...1330 Speed 4th rack travel in: 1600 rpm : 0.00...1.00 Speed LOW IDLE 1 control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 Speed rpm : 520...580 Speed rpm : 700 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.40...9.50 2nd speed rpm : 650 Rack travel in m: 9.90...10.00 3rd speed rpm : 850 Rack travel in m: 9.50...9.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 79.5...82.5 1000 s: (77.0...85.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.40 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

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**L06** 

LOW IDLE

Speed

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 149AG

Injection pump

Pump designation : PE6A95D410LS2450

EP type number

: 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

: 127.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed

Del.quantity

: 3.50

RATED SPEED

Spread

1st version

Control Lever

position degrees: ?

Testing:

1st rack travel in: 8.60

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

L07

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1325

Rack travel in mm : 9.60...9.70

Del.quantity cm3/: 8.7...8.9

100 s: (8.5...9.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

rpm : 1325 : 87.0...89.0

1000 : (85.0...91.0)

cm3 1000 : (6.00)

Speed rpm : 1300...1530 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 5.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00 : 520...580 Speed rom Speed rom : 700 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 9.60...9.70 rpm : 650 2nd speed Rack travel in m: 10.10...10.20 3rd speed rpm : 850 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8.60 Speed rpm : 1290...1300 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 14.00...14.40 LOW IDLE

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.00 1000 s: (5.00)

Remarks:

L08

rpm

Rack travel in mm : 5.90...6.10

: 300

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 24.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 149AH Injection pump Pump designation : PE6A95D41OLS245O EP type number : 0 410 696 989 Governor Governor design. : RSV300...1325A8C1002 Governer no. : 0 420 232 310 Customer-spec. information Customer : KHD Engine : F6L413F 1st version kW : 119.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Phasing : 0-75-120-195-240-315 Tolerance + - \* : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1200Rack travel in mm : 9.10...9.20 Del.quantity cm3/: 8.0...8.2 100 s: (7.8...8.4) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 Del.quantity : 80.0...82.0 1000 : (78.0...84.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 8.10 rpm : 1290...1300 Speed 2nd rack travel in: 4.00

Rack travel in mm : 9.00...12.00

: 1-6-5-4-3-2

Firing order

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

Speed rpm : 1300...1330 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 rpm : 520...580 Speed rpm : 700 Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200 Rack travel in m: 9.10...9.20

2nd speed rpm : 650

Rack travel in m: 9.60...9.70

3rd speed rpm : 850

Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 74.5...77.5 1000 s: (72.0...80.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.10

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

beea rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.00 1000 s: (5.00)

Remarks:

Spread

L10

Note remarks

Test sheet : KHD Edition : 31.07.92

Replaces :

Test oil : ISO-4113

Combination no. : 0 400 676 149AI

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

L

Governer no. : 0 420 232 310

Customer—spec. information Customer : KHD

Engine : F6L413F

1st version kW : 134.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

 $\times$  Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.9...1.5 100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1150

Del.quantity : 96.0...98.0

1000 : (94.0...100.0)

Spread cm3: 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 9.40

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1220...1250 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point wout bumper spring

rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm: 300 Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00

: 520...580 Speed riom

: 700 Speed LDW Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 10.40...10.50

2nd speed rpm : 650

Rack travel in m: 10.90...11.00

3rd speed rpm : 850

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 94.5...97.5 1000 s: (92.0...100.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.40

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

rom : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

rpm

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

L12

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AJ

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : D 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no. : 0 420 232 310

Customer—spec. information

Customen : KHD

: F6L413F Engine

1st version kW : 124.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing : 0-75-120-195-240-315

Tolerance + - \* : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testina:

1st rack travel in: 8.80

Speed rpm : 1190...1200

rpm : 1215...1245 Speed 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 5.5

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

rpm : 520...580 Speed

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.80...9.90

rpm : 650 2nd speed

Rack travel in m: 10.30...10.40

rpm : 850 3rd speed

Rack travel in m: 9.90...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 82.5...85.5 1000 s: (80.0...88.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.80

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

L14

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHO Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 149AK Injection pump Pump designation : PE6A95D41OLS2450 EP type number : 0 410 696 989 Governor Governor design. : RSV300...1325A8C1002 : 0 420 232 310 Governer no. Customer-spec. information Customer : KHD : F6L413F Engine 1st version kW : 118.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Open in a pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10 : (1.95...2.15) Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2

Phasina : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to syl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 8.1...8.3

100 s: (7.9...8.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150 Speed

Del.quantity : 81.0...83.0 1000 : (79.0...85.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: ?

Testing:

1st rack travel in: 8.30

rom : 1190...1200 Speed

rpm : 1215...1245 Speed 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 Speed

rpm : 520...580 rpm : 700 Speed

Maximum rack trave: 1.00

TORQUE CONTROL Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.80...9.90

3rd speed rpm : 850

Rack travel in m: 9.40...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 76.5...79.5 1000 s: (74.0...82.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

:

Note remarks

Test sheet : KHD Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AL

Injection pump

Pump designation : PE6A95D41OLS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

Governer no. : 0 420 232 310

Customer—spec. information Customer : KHD

Engine : F6L413F

1st version kW : 112.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

 $\times$  Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 9.00...9.10

Del.quantity cm3/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm: 1150

Del.quantity : 77.0...79.0

1000 : (75.0...81.0) cm3 : 3.50

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 8.00

Speed rpm : 1190...1200

rpm : 1210...1240 Speed 4th rack travel in: 1600

Speed  $r_{\text{DM}}$  : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

rpm : 520...580 Speed

Speed rom : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.00...9.10

rpm : 650 2nd speed

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 71.5...74.5 1000 s: (69.0...77.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

L18

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AM

Injection pump

Pump designation : PE6A95D41OLS2450

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information

Customer

: KHD

Engine

: F6L413F

1st version kW

: 101.04

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1150

Rack travel in mm : 8.40...8.50

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

ipm : 300.0

2rid speed Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 69.0...71.0

Spread

1000 : (67.0...73.0) : 3.50

cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: ?

Testina:

1st rack travel in: 7.40

Speed

rpm : 1190...1200

rpm : 1210...1240 Speed 4th rack travel in: 1600 Speed nom : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring npm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300 Speed Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rpm : 520...580 rpm : 700 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 8.40...8.50 2nd speed nom : 650 Rack travel in m: 8.90...9.00 3rd speed rpm : 850 Rack travel in m: 8.50...8.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 61.5...64.5 1000 s: (59.0...67.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.40 Speed rpm : 1190...1200 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 : 1-6-5-4-3-2 Firing order Note remarks Test sheet : KHD Edition : 31.07.92 Phasing : 0-75-120-195-240-315 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 400 676 149AN Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE6A95D41OLS2450 EP type number : 0 410 696 989 1st speed rpm: 1075 Governor Governor design. : RSV300...1325A8c1002 Rack travel in mm : 9.30...9.40 : 0 420 232 310 Governer no. Del.quantity cm3/ : 7.9...8.1 Customer-spec. information 100 s: (7.7...8.3) Customer : KHD Spread cm3 : 0.3Engine : F6L413F 100 s: (0.6) 1st version kW : 113.0 Rated speed : 2550 rpm : 300.0 2nd speed Rack travel in mm: 5.9...6.1 TEST BENCH REQUIREMENTS Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) Test oil cm3 : 0.3 Spread inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 rpm : 800 Speed Rack travel in mm : 0.30...1.70 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x : ?Opening pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 014 Speed rpm : 1075 Del.quantity : 79.0...81.0 Outside diameter 1000 : (77.0...83.0) x Wall thickness Spread cm3: 3.50 x Length mm : 6.00X2.00X600 1000 : (6.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: ?

Testina:

Speed

1st rack travel in: 8.30

2nd rack travel in: 4.00

rpm : 1115...1125

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

Speed rpm : 1140...1170 4th rack travel in: 1600 Speed pm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00 rpm : 520...580 rpm : 700 Speed Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1075 Rack travel in m: 9.30...9.40 2nd speed rpm : 650 Rack travel in m: 9.80...9.90 3rd speed rpm : 850 Rack travel in m: 9.40...9.60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 650 Speed Del.quantity cm3/ : 76.5...79.5 1000 s: (74.0...82.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.30 rpm : 1115...1125 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

rpm : 300

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

LOW IDLE

Speed

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149A0

Injection pump

EP type number

Pump designation : PE6A95D410LS2450 : 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

: 105.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 33...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1050

Rack travel in mm : 8.90...9.00

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1050

Del.quantity

: 74.0...76.0 1000 : (72.0...78.0)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.90

Speed

rpm : 1090...1100

Speed rpm : 1100...1130 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 Rack travel in mm : 2.00

rpm : 520...580 Speed

Speed rpm : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 8.90...9.00

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

3rd speed rpm : 850

Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 69.5...72.5

1000 s: (67.0...75.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 7.90

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

L24

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces : -

Test oil : ISO-4113

Combination no. : 0 400 676 149AP

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

~

Governer no. : 0 420 232 310

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 90.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 8.10...8.20

Del.quantity cm3/: 6.3...6.5

100 s: (6.1...6.7)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1050

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.10

Speed rpm : 1090...1100

Speed rpm : 1095...1125 4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Speed Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00 Speed : 520...580 rpm

Speed rom : 700 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 8.10...8.20

2nd speed rpm : 650

Rack travel in m: 8.60...8.70

3rd speed rpm : 850

Rack travel in m: 8.20...8.40

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 56.5...59.5 1000 s: (54.0...62.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 7.10

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

L26

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 149AQ

Injection pump

EP type number

Pump designation : PE6A95D410LS245D : 0 410 696 989

Governor

Governor design.

: RSV300...1325A8C1002

Governer no.

: 0 420 232 310

Customer-spec, information

Customer

Engine

: F6L413F

1st version kW

: 96.0

Rated speed

: 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

Insp. values in parentheses

(A) Injection pump setting values

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 900

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 7.4...7.6

100 s: (7.2...7.8)

Spread

2nd speed

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm: 5.9...6.1

Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7) cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 900

Del.quantity

: 74.0...76.0 1000 : (72.0...78.0)

cm3

: 3.50

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed

rpm : 940...950

Speed rpm : 950...980 4th rack travel in: 1600

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 21...29 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19 00 Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00

rpm : 520...580 rpm : 700 Speed

Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

rom : 650 Speed

Del.quantity cm3/: 69.5...72.5

1000 s: (67.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm: 940...950

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14,00...14.40

LOW IDLE

Speed rpm : 300

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 149AR Injection pump Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 Governor Governor design. : RSV300...1325A8c1002 Governer no. : 0 420 232 310 Customer-spec. information Customer : KHD Ergine : F5L413F 1st version kW : 107.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening : 172...175 pressure, bar Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2Phasina : 0-75-120-195-240-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1075 Rack travel in mm : 9.00...9.10 Del.quantity cm3/: 7.7...7.9 100 s: (7.5...8.1) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/ : 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1075 Speed : 77.0...79.0 Del.quantity 1000 : (75.0...81.0) cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 8.00 rpm : 1115...1125 Speed

2nd rack travel in: 4.00

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

rpm : 1140...1170 Speed 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 21...29

Setting point w/out bumper spring rpm : 300

Rack travel in mm: 5.5

Testing: Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 300 Rack travel in mm : 5.40...5.60

Rack travel in mm: 2.00

Speed rpm : 520...580 Speed

: 700 rpm Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1075

Rack travel in m: 9.00...9.10

2nd speed rpm : 650

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.10...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 73.5...76.5 1000 s: (71.0...79.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 8.00

rpm : 1115...1125 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rom

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

MO2

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 676 149AS Injection pump Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 Governor Governor design. : RSV300...1325A8C1002 : 0 420 232 310 Governer no. Customer-spec. information Customer : KHD Engine : F6L413F 1st version kW : 100.0 Rated speed : 2650 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175

Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 2.00...2.10 Prestroke mm

: (1.95...2.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2 Phasing : 0-75-120-195-240-315 Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1000Rack travel in mm : 8.90...9.00 Del.quantity cm3/ : 7.3...7.5 100 s: (7.1...7.7) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 7 : 73.0...75.0 1000 : (71.0...77.0) Del.quantity cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 7.90

rpm : 1040...1050

Speed rom : 1060...1090 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 21...29 Setting point w/out bumper spring

npm : 300° Speed Rack travel in mm: 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Speed

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 Speed rpm : 520...580 rpm : 700 Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 8.90...9.00

2nd speed rpm : 650

Rack travel in m: 9.50...9.60

3rd speed rpm : 850

Rack travel in m: 9.00...9.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/ : 70.5...73.5

1000 s: (68.0...76.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 7.90

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 9.0...15.0

1000 s: (6.5...17.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

MO4

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 149AT

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1325A8C1002

: 0 420 232 310 Governer no.

Customer-spec. information Customer

Engine : F6I 413F

1st version kW : 90.0 Rated speed : 2650

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.00...2.10 Prestroke mm

; (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 8.30...8.40

Del.quantity cm3/: 6.5...6.7

100 s: (6.3...6.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 300

Rack travel in mm : 0.30...1.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1000

: 65.0...67.0 Del.quantity 1000 : (63.0...69.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 7.30

Speed rpm : 1040...1050

Speed rpm : 1060...1090 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.5 Testing: Speed : 100 mar Minimum rack trave: 19.00 : 300 rpm Rack travel in mm : 5.90...6.10 Rack travel in mm: 2.00 rpm : 520...580 Speed rpm : 700 Speed Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 8.30...8.40 nom : 650 2nd speed Rack travel in m: 8.90...9.00 3rd speed rpm : 850 Rack travel in m: 8.40...8.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 63.5...66.5 1000 s: (61.0...69.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.30 Speed rpm : 1040...1050 STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Speed rpm : 300 Rack travel in mm : 5.90...6.10

Deliquentity cm3/: 9.0...15.0 1000 s: (6.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

M06

LOW IDLE

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no. : 0 400 676 150AA

Injection pump

Pump designation : PE6A95D41DLS245D

EP type number

: 0 410 696 989

Governor

Governor design.

: RSV300...1000A7c1002

Governer no.

: 0 420 232 309

Customer-spec. information Customer

: KHD

Engine

: F6L413F

1st version kW

: 96.0

Rated speed

: 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order

: 1-6-5-4-3-2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 980

Rack travel in mm : 9.30...9.40

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 980

: 74.0...76.0 Del.quantity

1000 : (72.0...78.0) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.30

Speed rpm : 940...950

2nd rack travel in: 4.00

**MO7** 

rpm : 950...980 Speed 4th rack travel in: 1200

Speed rpm : 0.30...1.70

LOW IDLE 1 Control Lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm: 2.00 rpm : 430...490 Speed rpm : 600 Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.40...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 69.5...72.5

1000 s: (67.0...75.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.30 Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

**MO8** 

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD : 31.07.92 Edition Replaces Test oil : ISO-4113 Combination no. : 0 400 676 150AB Injection pump Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 Governor Governor design. : RSV300...1000A7C1002 : 0 420 232 309 Governer no. Customer—spec. information Customer : KHD : F6L413F Engine : 92.0 1st version kW Rated speed : 2000 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 Firing order : 1 - 6 - 5 - 4 - 3 - 2Phasing : 0-75-120-195-240-315 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 9.00...9.10 Del.quantity cm3/ : 7.0...7.2 100 s: (6.8...7.4) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 900 Speed Del.quantity : 70.0...72.0 1000 : (68.0...74.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: ? Testing: 1st rack travel in: 8.00 Speed rpm : 940...950 2nd rack travel in: 4.00

Prestroke mm

Test pressure, bar: 25...27

: 2.00...2.10

: (1.95...2.15)

rpm : 950...980 Speed 4th rack travel in: 1200 rpm : 0.30...1.70 Speed LOW IDLE 1 Control Lever position degrees: 24...32 Setting point w/out bumper spring rpm : 300° Rack travel in mm : 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 300 Speed rpm Rack travel in mm : 5.90...6.10 Rack travel in mm.: 2.00 Speed rpm : 430...490 Speed rpm : 600 Maximum rack trave: 1.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 9.00...9.10 2nd speed rpm : 650 Rack travel in m: 9.20...9.30 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 65.5...68.5 1000 s: (63.0...71.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.00 Speed rpm : 940...950 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm: 14.00...14.40 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 Firing order : 1-6-5-4-3-2 Note remarks Test sheet : KHD Edition : 31.07.92 Phasing : 0-75-120-195-240-315 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 400 676 150AC Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989 1st speed rpm:900Governor Governor design. : RSV300...1000A7C1002 Rack travel in mm : 8.50...8.60 : 0 420 232 309 Governer no. Del.quantity cm3/: 6.2...6.4 Customer-spec. information 100 s: (6.0...6.6) Customer : KHD cm3 : 0.3Spread Engine : F6L413F 100 s: (0.6) : 83.0 1st version kW Rated speed : 2000 2nd speed rpm : 300.0Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 0.9...1.5 TEST BENCH REQUIREMENTS 100 s: (0.6...1.7) Test oil cm3 : 0.3Spread inlet temp. °C : 38...42 100 s: (0.5) Overflow valve GUIDE SLEEVE POSITION : 1 419 992 198 Control-lever position Degree: -3 Inlet press., bar: 1.50 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Test nozzle holder : 0 681 343 009 assembly Governor spring pre-tension Click setting x :? **Opening** pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Test lines : 1 680 750 014 Speed rpm : 900 Del.quantity : 62.0...64.0 Outside diameter 1000 : (60.0...66.0) x Wall thickness : 3.50 Spread cm3 x Length mm : 6.00x2.00x600 1000 : (6.00) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values Control lever position degrees: ? BEGINNING OF DELIVERY Test pressure, bar: 25...27 Testing: 1st rack travel in: 7.50

rpm : 940...950

Speed

2nd rack travel in: 4.00

Prestroke mm

: 2.00...2.10

: (1.95...2.15)

Speed rpm : 950...980 4th rack travel in: 1200

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

rpm : 300 Rack travel in mm : 5.5

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 300 Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00

rpm : 430...490 Speed

Speed rpm : 600 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 8.50...8.60

2nd speed rpm : 650

Rack travel in m: 8.60...8.70

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 650 Speed

Del.quantity cm3/: 59.5...62.5 1000 s: (57.0...65.0)

**BREAKAWAY** 

1st version 1mm rack travel less than

full load rack tr: 7.50

Speed rpm : 940...950

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

Note remarks

Test sheet : KHD

Edition | : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 676 150AD

Injection pump

Pump designation : PE6A95D41DLS245D EP type number : 0 410 696 989

Governor

: RSV300...1000A7C1002 Governor design.

: 0 420 232 309 Governer no.

Customer—spec. information Customer : KHD

Engine : F6L413F

1st version kW : 77.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

**Opening** 

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-6-5-4-3-2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm : 5.9...6.1

Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.7)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

: 69.0...71.0 Del.quantity 1000 : (67.0...73.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.20

rpm : 790...800 Speed

rpm : 815...845 Speed 4th rack travel in: 1200

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300

Rack travel in mm: 5.90...6.10 Rack travel in mm: 2.00

rpm : 430...490 Speed

Speed rpm : 600 Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 9.20...9.30

## **BREAKAWAY**

1st version 1mm rack travel less than

full load rack tr: 8.20

Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 14.00...14.40

Remarks:

M14

Note remarks

Test sheet : KHD Edition : 31.07.92

Replaces : Test oil : ISO-4113

Combination no. : 0 400 676 150AE

Injection pump

Pump designation : PE6A95D410LS2450 EP type number : 0 410 696 989

Governor

Governor design. : RSV300...1000A7c1002

Governer no. : 0 420 232 309

Customer-spec. information Customer : KHD

Engine : F6L413F

1st version kW : 73.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10

: (1.95...2.15)

Rack travel in mm : 9.00...12.00

Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 750

Rack travel in mm : 8.80...8.90

Del.quantity cm3/: 6.3...6.5

100 s: (6.1...6.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.9...1.5

100 s: (0.6...1.7)

Spread cm3: 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 750

Del.quantity : 63.0...65.0

1000 : (61.0...67.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: ?

Testing:

1st rack travel in: 7.80

Speed rpm : 790...800

2nd rack travel in: 4.00

M15

Speed rpm : 810...840 4th rack travel in: 1200

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm: 300
Rack travel in mm: 5.90...6.10
Rack travel in mm: 2.00 rpm : 430...490 rpm : 600 Speed Speed Maximum rack trave: 1.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 8.80...8.90

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 7.80 rpm : 790...800 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.00...14.40

Remarks:

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 676 173AA

Injection pump

Pump designation : PE6A95D410LS2587

EP type number

: 0 410 696 983

Governor

Governor design.

: RSV300...1150A8c1002

-1L

Governer no.

: 0 420 232 379

Customer

Customer-spec. information

: KHD

Engine

: F6L413F

1st version kW

: 112.0

Rated speed

: 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.50...1.60

: (1.45...1.65)

M17

Rack travel in mm : 9.00...12.00

Firing order : 1 - 6 - 5 - 4 - 3 - 2

Phasing

: 0-75-120-195-240-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm: 1150

Rack travel in mm : 9.20...9.30

Del.quantity cm3/: 7.9...8.1

100 s: (7.7...8.3)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

2nd speed Rack travel in mm : 6.4...6.6

Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1150

Del.quantity

: 79.0...81.0

1000 : (77.0...83.0)

Spread

: 3.50 cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 8.20

rpm : 1190...1200

rpm : 1215...1245 Speed 3rd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1415 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 13...21 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.0 Speed rpm : 300
Rack travel in mm : 5.90...6.60
Rack travel in mm : 2.00 Speed rpm : 540...600 TORQUE CONTROL Torque control curve - 1st version rpm : 1150 1st speed Pack travel in m: 9.20...9.30 2nd speed rpm : 650 Rack travel in m: 9.80...9.90 3rd speed rpm : 850 Rack travel in m: 9.40...9.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/: 78.5...81.5 1000 s: (76.0...84.0) RACK STOP ADJUSTMENT rpm : 500 Speed BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 8.20 Speed rpm : 1190...1200 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Remarks:

:

M18

Note remarks

Test sheet

: KHD

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 845 081AA

Injection pump

Pump designation : PES5A95D41ORS2417

EP type number

: 0 410 895 993

Governor

Governor design. : RQV300...1250AB1211L

Governer no.

: 0 420 212 184

Customer

Customer-spec. information : KHD

Engine

: F5L413FR

1st version kW

: 112.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

M19

Firing order

: 1-3-5-4-2

Phasing

: D-72-144-216-288

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread

2nd speed

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 : 1.00...1.20 travel mm

: 500 2nd speed rpm

travel mm : 3.20...3.50

3rd speed : 1000 rpm

: 6.20...6.40 travel mm : 1250

4th speed rpm travel mm

: 8.20...8.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed Del.quantity

rpm : 1250

: 95.0...97.0

1000 : (93.0...99.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 116...124 Testing: 1st rack travel in: 8.70 rpm : 1290...1300 Speed 2nd rack travel in: 4.50 Speed rpm : 1340...1370 4th rack travel in: 1500 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 80...88 Testing: Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300 Rack travel in mm : 6.40...6.60 CONSTANT REGULATION rpm : 365...480 Speed TORQUE CONTROL Dimension a mm : 0.30 Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 9.70...9.80 2nd speed rpm : 600 Rack travel in m: 10.00...10.10 3rd speed rpm : 750 Rack travel in m: 9.80...10.00 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version rpm : 600 Speed Del.quantity cm3/: 88.5...91.5 1000 s: (86.0...94.0) **BREAKAWAY** 1st version 1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

:

Remarks:

M20

Note remarks

Test sheet

: KHU

Edition

: 24.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 845 081AB

Injection pump

Pump designation : PES5A95D41ORS2417

EP type number

: 0 410 895 993

Governor

Governor design. : RQV300...1250AB1211L

Governer no.

: 0 420 212 184

Customer-spec, information

Customer

Engine

: F5L413FR

1st version kW

: 109.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

M21

Firing order

: 1-3-5-4-2

Phasing

: 0-72-144-216-288

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.50...9.60

Del.quantity cm3/ : 9.3...9.5

100 s: (9.1...9.7)

Spread

2nd speed

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL 1st speed

rpm : 250

: 1.00...1.20 travel mm

rpm : 500 2nd speed

: 3.20...3.50 travel mm

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm

: 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250

Del.quantity : 93.0...95.0

1000 : (91.0...97.0)

cm3 : 3.50 1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever position degrees: 116...124

Testing:

1st rack travel in: 8.50

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1340...1370 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 80...88

Rack travel in mm : 6.5

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 365...480 Speed

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.50...9.60

2nd speed rpm : 600

Rack travel in m: 9.80...9.90

3rd speed rpm : 750

Rack travel in m: 9.60...9.80

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 600 Speed

Del.quantity cm3/: 86.5...89.5

1000 s: (84.0...92.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.50

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

M22

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 24.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 845 082AA Injection pump Pump designation : PES5A95D410RS2680 EP type number : 0 410 895 972 Governor Governor design. : RQV300...1150AB1217L Governer no. : 0 420 212 186 Customer-spec. information Customer : KHD : F5L413FRW Engine 1st version kW : 79.0 : 2300 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_\_\_\_

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 1.50...1.60 : (1.45...1.65) Rack travel in mm : 9.00...12.00

Firing order : 1-3-5-4-2 Phasing : 0-72-144-216-288 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 7.80...7.90 hel.quantity cm3/: 6.6...6.8 100 s: (6.4...7.0) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 1.30...1.50 2nd speed : 500 rpm : 3.40...3.60 travel mm 3rd speed : 800 rpm : 5.20...5.60 travel mm rpm : 1150 4th speed : 7.80...8.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1200 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Del.quantity : 66.0...68.0 1000 : (64.0...70.0) Spread : 3.50 cm3 1000 : (6.00)RATED SPEED 1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.80

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260

4th rack travel in: 1350

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 65...73

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

rpm : 1150 1st speed

Rack travel in m: 7.80...7.90

2nd speed rpm : 700

Rack travel in m: 9.30...9.40

3rd speed rpm : 950 Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 73.5...76.5

1000 s: (71.0...79.0)

Speed rpm : 100 Del.quantity cm3/: 64.5...69.5 1000 s: (62.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.80

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.30...14.70

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

Set fuel delivery in fuel-delivery characteristics with stop above the governor housing.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 846 544AA Injection pump Pump designation : PES6A95D410RS2416 EP type number : 0 410 896 961 Governor Governor design. : RQV300...1250AB1211L : 0 420 212 184 Governer no. Customer-spec. information Customer : KHD Engine : F6L413FR 1st version kW : 134.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test Lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values \_ BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 9.70...9.80 Del.quantity cm3/: 9.6...9.8 100 s: (9.4...10.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed : 1.00...1.20 travel mm rpm : 500 2nd speed : 3.20...3.50 travel mm 3rd speed rpm : 1000 travel mm : 6.20...6.40 4th speed rpm : 1250 travel mm : 8.20...8.30 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1280 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed : 96.0...98.0 Del.quantity 1000 : (94.0...100.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

1st version

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.70

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1340...1370

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 84...92

Testing:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.70...9.80

2nd speed rpm : 600

Rack travel in m: 10.00...10.10

3rd speed rpm : 750

Rack travel in m: 9.80...10.00

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 88.5...91.5

1000 s: (86.0...94.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0) Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60

Del.quantity cm3/: 12.0...18.0 1000 s: (9.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

M<sub>2</sub>6

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks : KHD Test sheet Phasing : 0-60-120-180-240-300 Edition : 31.07.92 Replaces Tolerance + - ° : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 400 846 544AB rpm: 1250 1st speed Injection pump Pump designation : PES6A95D410RS2416 Rack travel in mm : 9.30...9.40 EP type number : 0 410 896 961 Governor Del.quantity cm3/: 9.0...9.2 Governor design. : RQV300...1250AB1211L : 0 420 212 184 Governer no. 100 s: (8.8...9.4) Customer-spec. information Spread cm3 : 0.3Customer : KHD 100 s: (0.6) : F6L413FR Engine rpm : 300.02nd speed : 127.0 1st version kW Rack travel in mm: 6.4...6.6 : 2500 Rated speed Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 419 992 198 GUIDE SLEEVE TRAVEL rpm : 250 1st speed Inlet press., bar: 1.50 : 1.00...1.20 travel mm rpm : 500 2nd speed Test nozzle holder : 3.20...3.50 travel mm rpm : 1000 assembly : 0 681 343 009 3rd speed : 6.20...6.40 travel mm rpm : 1250 Opening 4th speed pressure, bar : 172...175 : 8.20...3.30 travel mm GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1280 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1250 : 90.0...92.0 per values Del.quantity 1000 : (88.0...94.0) BEGINNING OF DELIVERY Spread : 3.50 cm3 Test pressure, bar: 25...27 1000 : (6.00)

RATED SPEED

1st version

Prestroke mm

: 1.90,..2.00

Rack travel in mm : 9.00...12.00

: (1.85...2.05)

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.30

Speed rpm : 1290...1300

2nd rack travel in: 4.50

rpm : 1330...1360 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 84...92

Testing:

rpm : 100 Speed Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 9.30...9.40

rpm : 600 2nd speed

Rack travel in m: 9.60...9.70

3rd speed rpm : 750

Rack travel in m: 9.40...9.60

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 83.5...86.5 1000 s: (81.0...89.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.40...6.60

Del.quantity cm3/: 12.0...18.0 1000 s: (9.5...20.5)

Spread

cm3 : 3.50 1000 s: (5.50)

Remarks:

M28

Note remarks

Test sheet

: KHD

Edition

: 31.07.92

Replaces

Test oil

: ISO-4113

Combination no.

: 0 400 846 544AC

Injection pump

Pump designation : PES6A95D410RS2416

EP type number

: D 410 896 961

Governor

Governor design. : RQV300...1250AB1211L

Governer no.

: 0 420 212 184

Customer-spec. information Customer

: KHD

Engine

: F6L413FR

1st version kW

: 123.0

Rated speed

: 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 1.90...2.00

(1.85...2.05)

Rack travel in mm : 9.00...12.00

NO1

Firing order

: 1- 5- 3- 6- 2- 4

Phasing

: 0-60-120-180-240-300

Tolerance + - \*

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1250

Rack travel in mm : 9.00...9.10

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0) cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 500

: 3.20...3.50 travel mm

rpm : 10003rd speed travel mm

: 6.20...6.40 rpm : 1250 4th speed

travel mm

: 8.20...8.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1280

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed

Spread

rpm : 1250

Del.quantity

: 86.0...88.0

1000 : (84.0...90.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 118...126

Testing:

1st rack travel in: 8.00

Speed rpm : 1290...1300

2nd rack travel in: 4.50

Speed rpm : 1330...1360

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 84...92

Testina:

Speed rpm : 100 Minimum rack trave: 8.00 Speed rpm: 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 9.00...9.10

2nd speed rpm : 600

Rack travel in m: 9.30...9.43

3rd speed rpm : 750

Rack travel in m: 9.10...9.30

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600 Del.quantity cm3/ : 78.5...81.5 1000 s: (76.0...84.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.00

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0 1000 s: (9.5...20.5) Spread cm3 : 3.50 1000 s: (5.50)

:

Remarks:

NO2

Note remarks

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 544AD

Injection cump

Pump designation : PES6A95D410RS2416

EP type number : 0 410 896 961

Governor

Governor design. : RQV300...1250AB1211L

: 0 420 212 184

Customer-spec. information Customer

Engine : F6L413FR

Rated speed : 2500

TEST BENCH REQUIREMENTS

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Test nozzle holder

assembly : 0 681 343 009

pressure, bar : 172...175

Test lines : 1 680 750 014

: 6.00x2.00x600 x Length mm

Insp. values in parentheses

per values

Test pressure, bar: 25...27

Prestroke mm

Rack travel in mm : 9.00...12.00

Test sheet : KHD

Governer no.

: KHD

: 117.0 1st version kW

Test oil

Inlet press., bar: 1.50

**Opening** 

Outside diameter x Wall thickness

(A) Injection pump setting values

Set equal delivery quant.

BEGINNING OF DELIVERY

: 1.90...2.00

: (1.85...2.05)

Firing order : 1- 5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 8.70...8.81

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm : 6.4...6.6

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

: 1.00...1.20 travel mm

rpm : 500 2nd speed

travel mm : 3.20...3.50

3rd speed rpm : 1000

travel mm : 6.20...6.40

4th speed rpm : 1250

travel mm : 8.20...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1280 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread : 3.50 cm3 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 118...126

Testina:

1st rack travel in: 7.70

rpm : 1290...1300 Speed

2nd rack travel in: 4.50

rpm : 1330...1360 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 84...92

Testing:

Speed rpm : 100

Minimum rack trave: 8.00

Speed rpm: 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 370...485

TORQUE CONTROL

Dimension a mm : 0.30

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 8.70...8.80

2nd speed rpm : 600

Rack travel in m: 9.00...9.10
3rd speed rpm : 750

Rack travel in m: 8.80...9.00

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/: 74.5...77.5

1000 s: (72.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 7.70

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

LOW IDLE

Speed rpm : 300

Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 12.0...18.0

1000 s: (9.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

N<sub>0</sub>4

Note remarks

Test sheet : KHD

Edition : 24,07,92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 545AA

Injection pump

Pump designation : PES6A95D41ORS2681

EP type number : 0 410 896 918

Governor

Governor design. : RQV300...1150AB1217L

: 0 420 212 186 Governer no.

Customer-spec. information

Customer : KHD

: F6L413FRW Engine

: 96.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60

: (1.45...1.65)

Rack travel in mm: 9.00...12.00

NO5

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 7.80...7.90

Del.quantity cm3/: 6.6...6.8

100 s: (6.4...7.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm: 6.4...6.6

Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.30...1.50 travel mm

2nd speed rpm : 500

travel mm : 3.40...3.60

3rd speed rpm : 800

: 5.20...5.60 travel mm

4th speed rpm : 1150

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1200 Speed

Rack travel in mm: 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 66.0...68.0 1000 : (64.0...70.0)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00

rpm : 1230...1260 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed : 100 שכנויו Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

rpm : 320...415 Speed

TORQUE CONTROL

Dimension a mm : 1.50

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 7.80...7.90

: 700 2nd speed rpm

Rack travel in m: 9.30...9.40

: 950 rpm 3rd speed

Rack travel in m: 8.60...8.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700 Del.quantity cm3/ : 73.5...76.5

1000 s: (71.0...79.0)

rpm : 100 Speed

Del.quantity cm3/ : 64.5...69.5

1000 s: (62.0...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.80

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.40...14.80

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

Note remarks

: KHD Edition : 24.07.92

: 2300 Replaces Test oil : ISO-4113

Combination no. : 0 400 846 545AB

Injection pump

Pump designation : PES6A95D41ORS2681 EP type number : 0 410 896 918

Governor

Governor design. : RQV300...1150AB1217L

: 0 420 212 186 Governer no.

Customer-spec. information Customer : KHD

Engine : F6L413FRW

1st version kW : 86.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60

: (1.45...1.65)

Rack travel in mm : 9.00...12.00

Test sheet

Phasing : 0-60-120-180-240-300

: 1-5-3-6-2-4

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

Firing order

1st speed rpm: 1150

Rack travel in mm : 7.30...7.40

Del.quantity cm3/: 6.0...6.2

100 s: (5.8...6.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.30...1.50

2nd speed rpm : 500

: 3.40...3.60 travel mm

rpm : 8003rd speed

: 5.20...5.60 travel mm

: 1150 4th speed rpm

travel mm : 7.80...8.20

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1200 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

: 60.0...62.0 Del.quantity 1000 : (58.0...64.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

N07

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 6.30

rpm : 1190...1200 Speed

2nd rack travel in: 4.00

rpm : 1225...1255 Speed

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 65...73

Testing:

Speed : 100 rpm

Minimum rack trave: 8.00

rpm : 300

Rack travel in mm : 6.40...6.60

CONSTANT REGULATION

Speed rpm : 320...415

TORQUE CONTROL

Dimension a mm : 1.40

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 7.30...7.40 2nd speed rpm : 700

Rack travel in m: 8.70...8.80

3rd speed rpm : 950

Rack travel in m: 8.00...8.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 64.5...67.5 1000 s: (62.0...70.0)

Speed rpm : 100 Del.quantity cm3/ : 64.5...69.5 1000 s: (62.G...72.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 6.30

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

On activation of the starting solenoid, the start position must be reached.

**APPLICATION** 

Below-ground operation

**80**M

Note remarks

Test sheet : KHD 6,1 m : 26.06.92 Edition Replaces : 9.86 Test oil : ISO-4113

Combination no. : 0 400 846 548

Injection pump

Pump designation : PES6A95D41DRS2715 EP type number : 0 410 896 911

Governor

Governor design. : RQV300...1250AB1158-

1L

: 0 420 212 188 Governer no.

Customer-spec. information Customer : KHD

Engine : BF6L913

1st version kW : 140.0 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 9.4...9.6

100 s: (9.2...9.8)

cm3 : 0.3Spread

100 s: (0.5)

2nd speed rpm : 300.0 Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.8)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.80...0.90 travel mm

2nd speed rpm : 600

travel mm : 3.60...3.90

3rd speed rpm : 900

: 5.20...5.40 travel mm 4th speed rpm : 1200

travel mm : 7.80...7.90

5th speed : 1400 rpm

travel mm : 10.00...10.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1265 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250 Aneroid pressure h: 700

Del.quantity : 94.0...96.0

: (92.0...98.0) 1000

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 119...127

Testing:

1st rack travel in: 13.00

rpm : 1290...1300 Speed

2nd rack travel in: 4.00

rpom : 1400...1430Speed

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 61...69

Testina:

Speed : 100 rpm Minimum rack trave: 6.50 rpm : 300

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 350...500 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

rpm : 1250 1st speed

Rack travel in m: 14.00...14.10

rpm : 500 2nd speed

Rack travel in m: 14.00...14.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500 Pressure hPa : 700

Rack travel mm : 14.00...14.10

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 10.50...10.70

2nd pressure hPa : 390
Rack travel in m: 13.10...13.20
3rd pressure hPa : 245
Rack travel in m: 11.60...11.80

START CUT-OUT

Speed 1/min : 220 (240)

N10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700 Speed rpm : 800

Del.quantity cm3/: 92.5...95.5

1000 s: (90.0...98.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

RACK STOP ADJUSTMENT

Speed

rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 15.20...15.60

Remarks:

On activation of the starting solenoid,

the start position must be reached.

**APPLICATION** 

GMC-truck

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Note remarks Test sheet : KHD Edition : 31.07.92 Phasing : 0-60-120-180-240-300 Replaces Test oil : ISO-4113 Tolerance + - \* : 0.50 (0.75) Combination no. : 0 400 846 568AA BASIC SETTING Injection pump 1st speed rpm: 1150 Pumo designation : PES6A95D41ORS2416 EP type number : 0 410 896 961 Rack travel in mm : 9.50...9.60 Governor Governor design. : RQV300...1150AB1211-Del. quantity cm3/: 9.3...9.5 11 : 0 420 212 217 Governer no. 100 s: (9.1...9.7) Customer-spec. information Spread cm3 : 0.3Customer : KHD 100 s: (0.6) Engine : F6L413FR-ALLG. rpm : 300.02nd speed 1st version kW : 124.0 Rack travel in mm: 6.6...6.8 : 2300 Del.quantity cm3/: 1.2...1.8 Rated speed 100 s: (0.9...2.0) cm3 : 0.3 TEST BENCH REQUIREMENTS Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 419 992 198 GUIDE SLEEVE TRAVEL 1st speed rpm : 300 Inlet press., bar: 1.50 1.20...1.30 travel mm rpm : 325 2nd speed Test nozzle holder : 1.70...1.80 travel mm : 0 681 343 009 assembly : 375 3rd speed rpm travel mm : 2.50...2.60 Opening 4th speed : 1265 rpm pressure, bar : 172...175 travel mm : 9.40...9.60 GUIDE SLEEVE POSITION Test lines : 1 680 750 014 Control-lever position Degree: -1 rpm : 1150 Outside diameter Speed x Wall thickness Rack travel in mm : 15.20...17.80 x Length mm : 6.00x2.00x600 FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Speed rpm : 1150 per values Del.quantity : 93.0...95.0 1000 : (91.0...97.0) BEGINNING OF DELIVERY : 3.50 Spread cm3 Test pressure, bar: 25...27 1000 : (6.00) : 1.90...2.00 Prestroke mm RATED SPEED

: (1.85...2.05)

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 8.50

Speed rpm : 1190...1200

2nd rack travel in: 4.50

Speed **rpm** : 1240...1270

4th rack travel in: 1370

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 83...91

Testing:

: 200 Speed rpm Minimum rack trave: 10.30 rpm : 300

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.50...9.60

2nd speed rpm : 650

Rack travel in m: 9.70...9.80

3rd speed rpm : 300

Rack travel in m: 9.50...9.70

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650 Del.quantity cm3/: 87.5...90.5

1000 s: (85.0...93.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100

N12

Del.quantity cm3/: 120.0...130.0

1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

:

Note remarks

Test sheet : KHD

Edition : 31.07.92

Replaces

Test oil : ISO-4113

Combination no. : 0 400 846 568AB

Injection pump

Pump designation : PES6A95D41ORS2416

EP type number : 0 410 896 961

Governor

Governor design. : RQV300...1150AB1211-

1L

: 0 420 212 217 Governer no.

Customer-spec. information Customer

: KHD

Engine : F6L413FR-ALLG.

1st version kW : 112.0 : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00

: (1.85...2.05)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.90...9.00

Del.quantity cm3/: 8.3...8.5

100 s: (8.1...8.7)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 1.20...1.30 travel mm

2nd speed rpm : 325

travel mm : 1.70...1.80

3rd speed rpm : 375

: 2.50...2.60 travel mm

4th speed : 1265 rpm

travel mm : 9.40...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 83.0...85.0

1000 : (81.0...87.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 116...124 Testina: 1st rack travel in: 7.90 Speed rpm : 1190...1200 2nd rack travel in: 4.50 Speed rpm : 1240...1270 4th rack travel in: 1370 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 83...91 Testing: rpm : 200 Speed Minimum rack trave: 10.30 Speed rpm : 300 Rack travel in mm: 6.60...6.80 CONSTANT REGULATION rpm : 310...450 Speed TORQUE CONTROL Dimension a mm : 0.20 Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 8.90...9.00 2nd speed rpm : 650 Rack travel in m: 9.10...9.20 3rd speed irpm : 800 Rack travel in m: 9.00...9.20 START CUT-OUT **Speed** 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 650 Del.quantity cm3/ : 77.5...80.5 1000 s: (75.0...83.0) **BREAKAWAY** 1st version

1st version 1mm rack travel less than

full load rack tr: 7.90 Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm: 100

N14

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 14.20...14.60

Remarks:

.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : KHD Edition : 31.07.92 Replaces Test oil : ISO-4113 Combination no. : 0 400 846 568AC Injection pump Pump designation : PES6A95D41ORS2416 EP type number : D 410 896 961 Governor : RQV3CO...1150AD1211-Governor design. 1L : 0 420 212 217 Governer no. Customer-spec. information Customer : KHD Engine : F6L413FR-ALLG. : 118.0 1st version kW Rated speed : 2300 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 1.90...2.00 Prestroke mm : (1.85...2.05) N15

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1150 Rack travel in mm : 9.20...9.30 Del.quantity cm3/ : 8.8...9.0 100 s: (8.6...9.2) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 6.6...6.8 Del.quantity cm3/: 1.2...1.8 100 s: (0.9...2.0) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300travel mm : 1.20...1.30 : 325 2nd speed rpm travel mm : 1.70...1.80 3rd speed rpm : 375 : 2.50...2.60 travel mm 4th speed : 1265 rpm travel mm : 9.40...9.60 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1150 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed : 1150 rpm Del.quantity : 88.0...90.0 1000 : (86.0...92.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 116...124

Testing:

1st rack travel in: 8.20

rpm : 1190...1200 Speed

2nd rack travel in: 4.50

Speed rpm : 1240...1270

4th rack travel in: 1370

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 83...91

Testing:

Speed rpm : 200 Minimum rack trave: 10.30 npm : 300

Rack travel in mm : 6.60...6.80

CONSTANT REGULATION

Speed rpm : 310...450

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1150

Rack travel in m: 9.20...9.30

2nd speed rpm : 650

Rack travel in m: 9.40,...9.50

3rd speed rpm : 800

Rack travel in m: 9.20...9.40

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 650

Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.0)

**BREAKAWAY** 

1st version

1mm rack travel less than

full load rack tr: 8.20

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

N16

Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0)

Rack travel in mm : 14.20...14.60

Remarks:

Note remarks

Test sheet : IHC 7,6 y 1 Edition : 24.07.92 Replaces : 03.92 Test oil : ISO-4113

Combination no. : 0 400 846 580

Injection pump

Pump designation : PES6A95D32ORS2779 EP type number : 0 410 896 903

Governor

Governor design. : RQV350...1350AB1248-

1R

Governer no. : 0 420 213 121

Customer-spec. information Customer : NAVISTAR

Engine : DTA 360

1st version kW : 138.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 110 assembly

Opening

: 250...253 pressure, bar

Orifice plate

diameter mm : 0,5

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.45...2.55 Prestroke mm

: (2.40...2.60) Rack travel in mm : 9.00...12.00

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.7...2.1

100 s: (1.5...2.3) cm3 : 0.3

Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

: 7.30...7.50 travel mm

2nd speed rpm : 1460

travel mm : 8.10...8.50 3rd speed rpm : 550

: 3.10...3.70 rpm : 350 travel mm

4th speed

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1350 Speed Aneroid pressure h: 900

Del.quantity : 85.0...89.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

N17

1st version Control lever

position degrees: 44...52

Testina:

1st rack travel in: 11.40

Speed rpm : 1400...1430

2nd rack travel in: 4.00

rpm : 1535...1545 Speed

4th rack travel in: 1625

rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 11...19

Testina:

Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

rpm : 350...500 Speed

Aneroid/Altitude Compensator Test

1st version

Setting Speed

Pressure

500 mon hPa : 900

Rack travel mm : 12.40...12.50

Measurement

Speed  $1/\min : 500$ 

1st pressure hPa : -

Rack travel in m: 10.00...10.20

2nd pressure hPa : 215

Rack travel in m: 10.80...10.90

3rd pressure hPa : 345

Rack travel in m: 11.60...12.00

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 71.0...75.0

1000 s: (69.0...77.0)

**BREAKAWAY** 

N18

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1400...1430

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 130.0...170.0 1000 s: (125.0...175.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 17.0...21.0 1000 s: (15.0...23.0) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: NAVISTAR #1818796091

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet : IHC 7,6 z 1 : 24.07.92 Edition Replaces : 03.92 : ISO-4113 Test oil

Combination no. : 0 400 846 603

Injection pump

Pump designation : PES6A95D32DRS2779 EP type number : 0 410 896 903

Governor

Governor design. : RQV350...1350AB1251-

1R

: 0 420 213 125 Governer no.

Customer-spec, information Customer : NAVISTAR

Engine : DT 360

1st version kW : 142.0 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening |

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Lenath mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.45...2.55

: (2.40...2.60) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1350

Rack travel in mm: 12.30...12.40

Del.quantity cm3/: 8.4...8.6

100 s: (8.2...8.8)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 7.30...7.50

2nd speed rpm : 1460

: 8.10...8.50 travel mm

rpm : 550 3rd speed

: 3.10...3.70 travel mm

rpm : 350 4th speed

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1350 Aneroid F. Del.quantity 1000 Aneroid pressure h: 900

: 84.0...86.0

: (82.0...88.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

N19

1st version Control lever position degrees: 44...52 Testing: 1st rack travel in: 11.30 Speed rpm : 1400...1430 2nd rack travel in: 4.00 rpm : 1535...1545 Speed 4th rack travel in: 1625 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 10...18 Testing: Speed : 100 rpm Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 5.80...6.00 CONSTANT REGULATION Speed rpm : 350...500 TORQUE CONTROL Dimension a mm : 0.80 Torque control curve - 1st version : 1350 1st speed rpm Rack travel in m: 12.30...12.40 2nd speed rpm : 850 Rack travel in m: 13.10...13.20 3rd speed rpm : 1200 Rack travel in m: 12.70...12.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 900 Pressure : 13.10...13.20 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.40...9.60 2nd pressure hPa : 230 Rack travel in m: 10.30...10.40 3rd pressure hPa : 525 Rack travel in m: 12.10...12.50 START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS

N20

1st version Aneroid pressure h: 900 Speed : 850 rpm Del.quantity cm3/: 96.0...100.0 1000 s: (94.0...102.0) cm3 : 5.00Spread 1000 s: (7.00) Amenoid pressure h: -Speed rpm : 500 Del.quantity cm3/: 66.0...70.0 1000 s: (64.0...72.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1400...1430 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 20.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 17.0...21.0 1000 s: (14.5...23.5) Spread cm3 : 3.501000 s: (5.50) Remarks: : NAVISTAR #1818798091 Limit shutoff stop screw to 1.0 mm. Start-of-delivery mark is at start of delivery of cylinder 1

Note remarks

Test sheet : IHC

Edition : 24.07.92

Replaces : 04.92 Test oil : ISO-4113

Combination no. : 0 400 846 606

Injection pump

Pump designation : PES6A95D32DRS2779

EP type number

: 0 410 896 903

Governor

Governor design. : RQV350...1200AB1236-

8R

: 0 420 213 127 Governer no.

Customer-spec, information Customer : NAVISTAR

Engine : DT 466

1st version kW : 145.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 110

Opening

pressure, bar : 250...253

Orifice plate

diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.65...2.75 : (2.60...2.80)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 13.10...13.20

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 1400

travel mm : 8.60...9.00 rpm : 1250 2nd speed

: 7.30...7.50 travel mm

rpm : 550 3rd speed

travel mm : 3.10...3.70

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 900

: 97.0...99.0 Del.quantity

1000 : (95.0...101.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 12.10

rpm : 1255...1285 Speed

2nd rack travel in: 4.00

rpm : 1400...1410 Speed

4th rack travel in: 1525

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 11...19

Testing:

Speed : 100 rpm

Minimum rack trave: 9.00 Speed

rpm : 350 Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 350...500 Speed

Ameroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rpm

hPa : 900 Pressure

Rack travel mm : 13.10...13.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.50...9.70

2nd pressure hPa : 225

Rack travel in m: 10.50...10.60

3rd pressure hPa : 460

Rack travel in m: 11.90...12.30

START CUT-OUT

1/min: 270 (280) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Det.quantity cm3/ : 67.0...71.0 1000 s: (65.0...73.0)

**BREAKAWAY** 

N22

1st version

1mm rack travel less than

full load rack tr: 12.10

rpm : 1255...1285 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 16.20...17.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.30...5.50
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: NAVISTAR #1819325091

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

Test sheet

: CUM 8,3 L 9

Edition

: 21.05.92

Replaces

: 09.91

Test oil

: ISO-4113

Combination no.

: 0 400 866 129

Injection pump

Pump designation : PES6A1000320/3RS2763

EP type number

: 0 410 806 006

Covernor

Governor design. : RSV400...1100ADC2190

-27R

Governer no.

: 0 420 233 225

Customer

Customer-spec. information

: C.D.C.

Engine

: 6CT 8.3

1st version kW

: 111.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 014

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 10.50

firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance  $+ - ^{\circ} : 0.50 (0.75)$ 

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 1100

Rack travel in mm : 9.70...9.80

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.4

100 s: (0.6)

2nd speed

rpm : 400.0

Rack travel in mm: 4.9...5.1

Deliquantity cm3/: 1.2...1.6

100 s: (0.9...1.8)

Spread

Spread

cm3 : 0.6 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Del.quantity

rpm : 1100

: 88.0...90.0

1000 : (86.0...92.0)

Spread

cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

N23

1st rack travel in: 8.70

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed : 1230...1240 rpm

3rd rack travel in: 4.00

: 1225...1255 Speed rpm

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 35...43

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.5

Testina:

Speed : 100 rom Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 4.40...4.60

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.70...9.80

2nd speed rpm : 750

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 96.5...100.5

1000 s: (94.5...102.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.70

Speed rpm : 1145...1155

STARING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...16.0

1000 s: (9.5...18.5)

N24

Spread

cm3 : 6.001000 s: (8.00)

Remarks:

: C.D.C. # 3915973

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 0,5 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Note remarks

Test sheet : KHD 6,1 w 1 : 26.06.92 Edition

Replaces : 08.91 Test oil : ISO-4113

Combination no. : 0 400 866 173

Injection pump

Pump designation : PES6A85D410/3RS2611

: 0 410 886 902 EP type number

Governor

Governor design. : RSV325...1200A0c2148

-1L

: 0 420 232 567 Governer no.

Customer-spec. information Customer : KHD

Engine : F6L913 H

1st version kW : 85.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 2.50...2.60 Prestroke mm

: (2.45...2.65)

Phasina : 0-60-120-180-240-300

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 6.1...6.2

100 s: (5.9...6.4)

cm3 : 0.3Spread

100 s: (0.5)

rpm : 325.02nd speed Rack travel in mm: 8.4...8.6 Del.quantity cm3/: 0.8...1.4

100 s: (0.6...1.6)

cm3 : 0.2Spread 100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

: 61.5...62.5 Del.quantity 1000 : (59.5...64.5)

cm3 : 3.00

Spread 1000 : (5.00)

RATED SPEED

1st version Control lever

position degrees: 100...108

Testing:

1st rack travel in: 9.40

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1295...1325

4th rack travel in: 1460

rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 8.5 rpm : 325 Speed Rack travel in mm : 8.40...8.60 Rack travel in mm : 2.00 Speed rpm : 440...500SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 10.40...10.50 2nd speed rpa : 500 Rack travel in m: 11.00...11.20 3rd speed rpm : 800 Rack travel in m: 11.00...11.20 4th speed rpm : 1050 Rack travel in m: 10.70...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpa : 800 Del. quantity cm3/: 54.0...56.0 1000 s: (51.5...58.5) Speed rpm : 1050 Del.quantity cm3/: 59.0...61.0 1000 s: (56.5...63.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 Speed rpm : 1240...1250 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 115.0...125.0 1000 s: (112.0...128.0) Rack travel in mm : 17.60...18.00 Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CAS 4,9 a 1 : 29.07.92 Test sheet Edition Replaces : 01.08.89 Test oil : ISO-4113 Combination no. : 0 400 874 160 Injection pump Pump designation : PES4A85D420LS2263 Governor Customer-spec. information Customer : CASE Engine : A 301 BD TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : WS 187P (CASE) Inlet press., bar: 1.5 Test nozzle holder assembly : 0 681 343 009 Opening pressure, bar : 172...175 Test lines : 9 681 230 706 Outside diameter x Wall thickness x Length mm : 6,00x2,00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Governor design. : RSV375...1000A2B547D per values BEGINNING OF DELIVERY : 2,15...2,25 : (2,10...2,30) Prestroke mm Rack travel in mm : 9,00...12,00 Firing order

Phasing : 0-90-180-270 Tolerance + - ° : 0,50 (0,75) BASIC SETTING 1st speed rpm: 1000 Rack travel in mm: 9,00 Del.quantity cm3/: 4,35...4,55 100 s: (-) 2nd speed rpm : 200
Rack travel in mm : 6,00
Del.quantity cm3/ : 1,15...1,75 100 s: (-) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0,30...0,70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 : 70,0...71,0 Del.quantity 1000 : (69,0...72,0) RATED SPEED 1st version Control lever position degrees: 37...45 Testing: 1st rack travel in: 11.20 rpm : 1030...1050 Speed 2nd rack travel in: 5,60 Speed rpm : 1065...1095 4th rack travel in: 1200 Speed rpm : 0,20...1,20LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 375 Rack travel in mm : 7,50 Testing: Speed rpm : 150 Minimum rack trave: 19,00 rpm : 375Rack travel in mm : 7,40...7,60

Rack travel in mm: 4.00 rpm : 450...470 Speed : 600 Speed rpm Maximum rack trave: 1,00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 9,00 2nd speed nom : 800 Rack travel in m: 9,80...9,90 3rd speed rpm : 400 Rack travel in m: 10,50...10,70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 600 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 8,00 rpm : 1040...1055 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 124,0...135,0 1000 s: (-) HIGH IDLE 1st version rpm : 1090 Speed Del.quantity cm3/: 9,5...17,5 1000 s: (-) LOW IDLE Speed rpm : 375
Del.quantity cm3/: 15,5...19,5 1000 s: (-) Remarks: